Astronomy
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JULY 1980 NUMBER 431 -- Part I

AUG 26 1980

Solar-Geophysical Data prompt reports

Data for June 1980 -- May 1980 & Late Data

Explanation of Data Reports Issued as Number 426 (Supplement) February 1980

Late Data Pages 159-169

noaa NATIONAL OCEANIC AND / ENVIRONMENTAL DATA AND / BOULDER, COLORADO

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Solar - Geophysical Data

NO. 431 JULY 1980

Part I (Prompt Reports)

DATA FOR
JUNE 1980
MAY 1980

NATIONAL GEOPHYSICAL AND SOLAR - TERRESTRIAL DATA CENTER
BOULDER, COLORADO

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SOLAR-GEOPHYSICAL DATA

No. 431

Issued in two parts

Helen E. Coffey, Editor

J. Virginia Lincoln, Chief
Solar-Terrestrial Physics Division

CONTENTS

Part I (Prompt Reports)

PAGE

Index for 1979-1980 2

Data for June 1980 3-42

Data for May 1980 43-157

Late Data 159-169
Spacecraft Observations May 1980
Pioneer IX and XII (Solar Wind)
Daily Solar Activity Centers
He 10830 Synoptic Map (Rotation 1693)
Cosmic Rays Huancayo Apr 1980
Geomagnetic Indices
Chart of Dst by Bartels 27-day Rotation
Hourly Equatorial Dst Values Mar, Apr 1980
Sudden Commencements and Solar Flare Effects Feb-Apr 1980

Part II (Comprehensive Reports)

Index for 1979-1980 2

Data for January 1980 3-31
Note on delay of Solar Flare Data 4

Data for June 1979 33-67

Miscellaneous Data
Regional Flare Index May 1979 69-73
Active Regions Oct 6 - Nov 3, 1979
Synoptic Solar Map Oct 6 - Nov 3, 1979

DETAILED COVERAGE FOR 1979-80 PUBLISHED IN "SOLAR-GEOPHYSICAL DATA"

		1979 May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	1980 Jan	Feb	Mar	Apr	May	June
A.	SOLAR AND INTERPLANETARY PHENOMENA														
A.1	Sunspot Drawings	419A 48	420A 50	421A 50	422A 52	423A 50	424A 50	425A 48	426A 50	427A 50	428A 44	429A 42	430A 52	431A 48	
A.2a	Zurich Provisional Relative Sunspot Numbers Rz	418A 11	419A 11	420A 11	421A 11	422A 11	423A 11	424A 11	425A 11	426A 10	427A 9	428A 10	429A 9	430A 11	431A 11
A.2b	Zurich Final Sunspot Numbers Rz	418A 9	419A 9	420A 9	421A 9	422A 9	423A 9	424A 9	425A 9	426A 9					
A.2c	American Relative Sunspot Numbers WA	418A 11	419A 11	420A 11	421A 11	422A 11	423A 11	424A 11	425A 11	426A 10	427A 9	428A 10	429A 9	430A 11	431A 11
A.3a	Mt. Wilson Magnetograms	419A 48	420A 50	421A 50	422A 52	423A 50	424A 50	425A 48	426A 50	427A 50	428A 44	429A 42	430A 52	431A 48	
A.3b	Mt. Wilson Magnetic Characteristics of Sunspots	419A110	420A110	421A112	422A 11	423A110	424A112	425A108	428A150	427A112	428A102	429A104	430A112	431A110	
A.3c	Kitt Peak Magnetograms	419A 48	420A 50	421A 50	422A 52	423A 50	424A 50	425A 48	426A 50	427A 50	428A 44	429A 42	430A 52	431A 48	
A.3d	Mean Solar Magnetic Field (Stanford)	418A 38	419A 38	420A 40	421A 40	422A 42	423A 40	424A 40	425A 36	426A 38	427A 38	428A 34	429A 35	430A 44	431A 41
A.3e	Stanford Magnetograms	419A 48	420A 50	421A 50	422A 52	423A 50	424A 50	425A 48	426A 50	427A 50	428A 44	429A 42	430A 52	431A 48	
A.4	H-alpha Filtergrams	419A 48	420A 50	421A 50	422A 52	423A 50	424A 50	425A 48	426A 50	427A 50	428A 44	429A 42	430A 52	431A 48	
A.5	Calcium Plage Drawings - Mt. Wilson	419A110	420A110	421A112	422A114	423A110	424A112	425A108	428A150	427A112	428A102	429A104	430A112	431A110	
A.5a	Calcium Plage (Mt. Wilson) and Sunspot Regions	419A123	420A121	421A125	422A129	423A124	424A125	425A121	426A112	427A122	428A112	429A115	430A123	431A121	
A.5b	Mt. Wilson Daily Calcium Plage Indices	419A 43	420A 44	421A 44	422A 46	423A 44	424A 44	425A 40	426A 42	427A 42	428A 38	429A 39	430A 48	431A 44	
A.6	H-alpha Synoptic Charts	426a 39	426a 40	426a 41	427a 40	429a 38	430a 30								
A.6b	Synoptic Chart and Active Regions (Paris)	419A 44	420A 46	421A 46	422A 48	423A 46	424A 46	425A 42	426A 44	427A 44	428A 40	429A 40	430A 49	431A 45	
A.6c	Stanford Solar Magnetic Field Synoptic Charts	419A 45	420A 48	421A 48	422A 50	423A 48	424A 48	425A 44	426A 46	427A 46	428A 42	429A 41	430A 50		
A.6d	Kitt Peak Solar Magnetic Field Synoptic Charts	418A 34	419A 34	420A 35	421A 37	422A 38	423A 41	424A 28	425A 37	426A 39	427A 39	428A 35	429A 36	430A 41	
A.7f	Helium D3 Chromosphere (Big Bear)	419A 33	419A 33	420A 34	421A 36	422A 76	425A 46	425A 47	426A 48	427A 48		431A162	430A 51	431A 46	
A.7g	Helium Synoptic Maps (KPNO)	419A 48	420A 50	421A 50	422A 52	423A 50	424A 50	425A 48	426A 50	427A 50	428A 44	429A 42	430A 52	431A 48	
A.7h	Coronal Line Emission (Sac Peak)	418A 11	419A 11	420A 11	421A 11	422A 11	423A 11	424A 11	425A 11	426A 10	427A 9	428A 10	429A 9	430A 11	431A 11
A.8aa	2800 MHz - Daily Values of Solar Flux (ARO-Ottawa)	418A 11	419A 11	420A 11	421A 11	422A 11	423A 11	424A 11	425A 11	426A 10	427A 9	428A 10	429A 9	430A 11	431A 11
A.8ac	2800 MHz - Daily Values of Adj. Solar Flux (ARO-Ottawa)	418A 11	419A 11	420A 11	421A 11	422A 11	423A 11	424A 11	425A 11	426A 10	427A 9	428A 10	429A 9	430A 11	431A 11
A.8g	Daily Values of Adjusted Solar Flux (AFGL)	418A 11	419A 11	420A 11	422B 84	4c2A 11	423A 11	424A 11	425A 11	426A 10	427A 9	428A 10	429A 9	430A 11	431A 11
A.9cb	8.6 mm Radio Maps of the Sun (NOSC - La Posta)	419A 48	420A 50	421A 50	422A 52	423A 50	424A 50	425A 48	426A 50	427A 50	428A 44	429A 42	430A 52	431A 48	
A.9d	2 cm Radio Maps of the Sun (NOSC - La Posta)	419A 48	420A 50	421A 50	422A 52	423A 50	424A 50	425A 48	426A 50	427A 50	428A 44	429A 42	430A 52	431A 48	
A.10a	169 MHz - Interferometric Observations (Nancay)	419B 52	420B 69	420A 24	422B 85	422A 29	423A 27	424A 25	426A148	426A 23	427A 23	428A 20	429A 22	430A 26	
A.10c	21 cm East-West Solar Scans (Fleurs)	418A 25	420B 70	420A 27	421A 28	422A 28	423A 30	424A 28	425A 27	426A 26	427A 26	429A150	429A 25	430A 29	431A 28
A.10d	43 cm East-West Solar Scans (Fleurs)	418A 26	420B 71	420A 28	421A 29	422A 29	423A 31	424A 29	425A 28	426A 27	427A 27	429A151	429A 26	430A 30	431A 29
A.10e	10.7 cm East-West Solar Scans (Ottawa-ARO)	418A 24	419A 26	420A 26	421A 27	422A 27	423A 29	424A 27	425A 26	426A 25	427A 25	428A 22	430A175	430A 28	431A 27
A.10f	3 cm East-West Solar Scans (Toyokawa)	418A 23	419A 25	420A 25	421A 26	422A 26	423A 28	424A 26	425A 25	426A 24	427A 24	428A 21	429A 23	430A 27	431A 26
A.11b	Solar X-ray Radiation (SOLRAD 11)	419A126	420A124	421A129	422A133	423A128	426A150	---	---	---	---	---	---	---	
A.11g	Solar X-ray (SMS/GOES) (graphs)	423B 17	424b 29	425B 20	426b 24	427B 28	429B 24	429B 26	430B 16	431B 27					
A.12ba	Cosmic Ray Protons (Pioneers 6 & 7)	---	---	---	---	---	---	---	---	---	---	---	---	---	---
A.12bb	Cosmic Ray Protons (Pioneers 8 & 9)	---	---	---	---	424B 39	---	---	---	426A 32	427A 33	428A 28	429A 32	431A160	431A 38
A.12e	Energetic Solar Particles (IMP H & J)	424B 40	427B 37	426B 33	427B 42	430B 24	429B 32								
A.13a	Solar Wind (Pioneers 6 & 7)	---	---	---	---	---	---	---	---	---	427A 32	428A 27	429A 32	---	431A 38
A.13ab	Solar Wind (Pioneers 8 & 9)	---	---	---	---	424B 39	---	---	---	426A 32	427A 33	428A 28	429A 32	431A160	431A 38
A.13d	Solar Wind from IPS Measurements	418A 35	419A 35	420A 37	422B 89	422A 39	424B 36	424A 37	426A146	426A 34	427A 35	428A 30	430A164	430A 37	431A 36
A.13e	Solar Plasma (IMP H & J)	423B 17	424B 28	425B 19	426B 23	427B 27	429B 23	429B 25	430B 15						
A.13f	Solar Wind (Pioneer 12 (Venus))	418A 32	419A 32	420A 36	421A 35	422A 37	423A 37	424A 36	425A 32	426A 33	427A 34	428A 29	429A 33	431A161	431A 39
A.17	Interplanetary Magnetic Field (Pioneer 8)	---	---	---	---	---	---	---	---	---	---	---	---	---	---
A.17	Interplanetary Magnetic Field (Pioneer 9)	---	---	---	---	424B 39	---	---	---	426A 32	427A 33	428A 28	429A 32	431A160	431A 38
A.17	Interplanetary Magnetic Field (Pioneer 12)					423B 73	424B 38	425B 29	426A116	---	---	429A119	430A127	431A125	
A.17c	Inferred IP Magnetic Field	418A 36	419A 36	420A 38	421A 38	422A 40	423A 38	424A 38	425A 34	426A 36	427A 36	428A 32	430A 42	430A 42	
A.18	Interplanetary Electric Field (Pioneer 8)	---	---	---	---	---	---	---	---	---	---	---	---	---	---
A.18	Interplanetary Electric Field (Pioneer 9)	---	---	---	---	424B 39	---	---	---	426A 32	427A 33	428A 28	429A 32	431A160	431A 38
B.	IONOSPHERIC (AND RADIO WAVE PROPAGATION) PHENOMENA														
B.52	Graphs of Transmission Frequency Range	419A168	420A166	421A166	422A178	423A174	424A154	425A152	426A142	427A154	428A140	429A146	430A160	431A156	
B.53	Quality Figures Based on Frequency Ranges	419A167	420A168	421A165	422A180	423A173	424A153	425A151	426A141	427A153	428A139	429A148	430A159	431A155	
C.	FLARE-ASSOCIATED EVENTS														
C.1a	Optical Observations Flares	418A 14	419A 14	420A 14	421A 14	422A 14	423A 15	424A 15	425A 15	426A 15	427A 14	428A 15	429A 14	430A 16	431A 16
C.1ba	Optical Observations Flares (Standardized Data)	430B 68	431B 34												
C.1d	Flare Patrol Observations	418A 23	419A 24	420A 23	421A 25	423B 72	423A 26	424A 24	425A 24	427A158	427A 22	---	---	430A 46	431A 25
C.1d	Flare Patrol Observations	430B108	431B 67												
C.1e	Flare Indices (by day)	430B107	431B 66												
C.1f	Flare Indices (by Region)	431B 70													
C.3	Solar Radio Waves - Outstanding Occurrences	423B 4	424B 4	425B 5	426B 5	427B 5	428B 5	429B 5	430B 5	431B 5					
	Solar Radio Waves - Fixed Frequencies - Selected	418A 28	419A 27	420A 29	421A 30	422A 30	423A 32	424A 30	425A 29	426A 28	427A 28	428A 23	429A 27	430A 31	431A 30
C.3t	43.2%, 80 and 160 MHz Selected Bursts (Culgoora)														
C.4a	Solar Radio Spectral Obs. (Fort Davis)	420B 75	420A139	423B 76	423B 78	423A143	426A149	426A153	426A117	427A126	428A116	429A120	430A128	431A126	
C.4d	Solar Radio Spectral Obs. (Culgoora)	419A142	420A139	421A145	422A149	423A143	424A130	425A125	426A117	427A126	428A116	429A120	430A128	431A126	
C.4e	Solar Radio Spectral Obs. (Weissenau)	419A142	420A139	422B 66	422A149	423A143	424A130	425A125	426A117	427A126	428A116	429A120	430A128	431A126	
C.4f	Solar Radio Spectral Obs. (Sagamore Hill)	419A142	420A139	421A145	---	---	---	---	---	---	---	429A120	430A128	431A126	
C.4h	Solar Radio Spectral Obs. (Learmonth)	419A142	---	---	422A149	423A143	424A130	425A125	426A117	427A126	428A116	429A120	430A128	431A126	
C.4i	Solar Radio Spectral Obs. (Bleien)	419A142	---	---	422A149	423A143	424A130	425A125	426A117	427A126	428A116	429A120	430A128	431A126	
C.4j	Solar Radio Spectral Obs. (Manila)	419A142	420A139	421A145	422A149	---	424A130	425A125	426A117	427A126	---				
C.4k	Solar Radio Spectral Obs. (Learmonth)				422A149	423A143		425A125		427A126	428A116	429A120	430A128	431A126	
C.4l	Solar Radio Spectral Obs. (Palehua)				422A149	423A143		425A125		427A126	428A116	429A120	430A128	431A126	
C.5e	Solar X-ray (SMS/GOES) (graphs)	423B 17	424B 29	425B 20	426B 24	427B 28	428B 24	429B 26	430B 16	431B 27					
C.6	Sudden Ionospheric Disturbances	419A124	420A122	421A126	422A130	423A125	424A126	425A122	426A113	427A123	428A113	429A116	430A124	431A122	
D.	GEOMAGNETIC AND MAGNETOSPHERIC PHENOMENA														
D.1a	Geomagnetic Indices Kp, Kn, Ks, Km, Ap, aa, Cp	419A160	420A160	421A159	422A170	423A166	424A147	425A144	426A133	427A148	429A154	429A142	430A155	431A151	
D.1ba	27-day Chart of Kp Indices	419A162	420A162	421A161	422A172	423A168	424A149	425A146	426A135	427A150	428A137	429A144	430A157	431A153	
D.1c	27-day Chart of C9	426A136	426A136	426A136	426A136	426A136	426A136	426A136	426A136						
D.1ca	aa graph 1868 - present	426A137	426A137	426A137	426A137	426A137	426A137	426A137	426A137						
D.1d	Principal Magnetic Storms	419A165	420A165	421A164	422A175	423A171	424A152	425A149	426A140	427A151	428A138	429A145	430A150	431A154	
D.1e	Reduced Magnetograms														
D.1f	Sudden Commencement and Solar Flare Effects	419A166	421B 42	422B 90	422A177	423A172	425B 33	425A150	427A164	427A152	431A168	431A168	431A169		
D.1g	Equatorial Indices Dst	419A164	420A164	421A163	422A174	423A170	424A151	425A148	426A139	428A147	429A150	431A166	431A167		
D.1h	Geomagnetic Substorm Log (Boulder)	418A 39	419A 39	420A 41	421A 41	422A 43	423A 42	424A 41	425A 38	426A 40	427A 40	428A 36	429A 37	430A 45	431A 42
F.	COSMIC RAYS														
F.1a	Cosmic Ray Neutron Counts (Deep River)	419A153	420A155	421A158	422A165	423A161	425B 32	427A159	427A159	428A146	429A153	429A137	430A154		
F.1b	Cosmic Ray Neutron Counts (Climax)	419A153	420A155	421A158	422A165	423A161	425B 32	425A143	426A132	428A146	428A134	430A167	430A154	431A150	
F.1e	Cosmic Ray Neutron Counts (Alert)	420B 78	420A155	421A158	422A165	423A161	425B 32	427A159	427A159	428A146	429A153	429A137	430A154		
F.1f	Cosmic Ray Neutron Counts (Calgary)														
F.1h	Cosmic Ray Neutron Counts (Thule)	419A153	420A155	421A158	422A165	423A161	424A146	425A143	426A132	427A147	428A134	429A137	430A154	431A150	
F.1i	Cosmic Ray Neutron Counts (Kiel)	419A153	420A155	421A158	422A165	423A161	427A159	425A143	426A132	427A147	428A134	429A137	430A154	431A150	
F.1j	Cosmic Ray Neutron Counts (Tokyo)	419A153	420A155	421A158	422A165	423A161	427A159	425A143	426A132	427A147	428A134	429A137	430A154	431A150	
F.1k	Cosmic Ray Neutron Counts (Kula)									---	---	---	---	---	
F.1l	Cosmic Ray Neutron Counts (Huancayo)	420B 79	420A155	421A158	423B 81	425B 32	425B 32	426A177	427A159	428A146	430A167	430A167	431A163		
H.	MISCELLANEOUS														
H.60	IUWDS Alert Decisions	418A 5	419A 5	420A 5	421A 5	422A 4	423A 4	424A 4	425A 4	426A 4	427A 4	428A 4	429A 4	430A 5	431A 5
H.62	Abbreviated Calendar Record														

Notes:

"419A 48" listed under 1979 MAY means that the sunspot drawings for MAY 1979 were contained in *Solar-Geophysical Data* 104

A = Part I, B = Part II.

----- = no data available.
blank = data not yet received.

SGD 431 Part I (Prompt)

JUNE 1980 DATA

Contents

	Page
Alert Periods	
IUWDS Alert Periods (Advance and Worldwide)	5-9
Daily Solar Indices	
Relative Sunspot Numbers, R_Z, and Daily Solar Flux at 2800 MHz (12 Month Tables)	10
Daily Solar Indices (Sunspot Numbers and Solar Fluxes)	11
Observed and Predicted Solar Activity Indices	12
Smoothed Observed and Predicted Sunspot Numbers	13
Graph of Observed and Predicted Sunspot Numbers	14
Graph of Superposition of Cycles 18, 19 and 20	15
Solar Flares	
Hα Solar Flares	16-24
Intervals of No Flare Patrol Observation	25
Solar Radio Emission	
169 MHz Solar Interferometric Chart - Nancay (Data not available at time of publication.)	
3 cm East-West Solar Scans - Toyokawa	26
10.7 cm East-West Solar Scans - ARO, Ottawa	27
21 cm East-West Solar Scans - Fleurs	28
43 cm East-West Solar Scans - Fleurs	29
Selected Fixed Frequency Events	30-34
Selected Solar Noise Bursts	35
Solar Wind Measurements	
Interplanetary Scintillations	36-37
Coronal Holes	
Helium D3 Chromosphere (Data not available at time of publication.)	
Spacecraft Observations	
Pioneer VII	38
Pioneer IX	38
Pioneer XII (Pioneer Venus) Solar Wind	39
Inferred Interplanetary Magnetic Field Polarities (Data not available at time of publication.)	
Mean Solar Magnetic Field	
Stanford Mean Solar Magnetic Field (Chart)	40
Stanford Mean Solar Magnetic Field (Table)	41
Geomagnetic	
Boulder Geomagnetic Substorm Log	42

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ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

JUNE 1980

PRESTO MESSAGES (THE RAPID REPORT OF MAJOR EVENTS)

03 JUNE 1980 PRESTO BOULDER 03/2134Z SOFLARE M7/1B S12E64 03/2134Z DURATION 36 MINUTES.
SYDNEY 03/2215Z STRONG TYPE II BURST START 2132Z END 2210Z WITH TYPE IV CONTINUUM 2130-2156Z.
04 JUNE 1980 PRESTO TOYOKAWA 04/0654Z TENFLARE 179 FLUX UNITS DURATION 10 MINUTES. 04/0750Z TENFLARE 2010 FLUX UNITS IN PROGRESS.
BOULDER 04/0858Z TENFLARE 1600 FLUX UNITS DURATION 43 MINUTES.
MEUDON 04/0920Z MAJORFLARE IN PROGRESS AT S14E60 IMP ZB. TYPE IV AT NANCAY START 04/0836Z IN PROGRESS AT 0900Z.
BOULDER 04/2340Z SOFLARE X1/1B S12W71 04/2302Z DURATION 8 MINUTES.
TOYOKAWA 04/2350Z TENFLARE 250 FLUX UNITS DURATION 10 MINUTES.
06 JUNE 1980 PRESTO BOULDER 06/2206Z TENFLARE 290 FLUX UNITS DURATION 3 MINUTES.
07 JUNE 1980 PRESTO TOYOKAWA 07/0330Z TENFLARE 130 FLUX UNITS DURATION 7 MINUTES.
19 JUNE 1980 PRESTO BOULDER 19/2005Z SOFLARE M2/2B S23E53 19/1948Z DURATION 41 MINUTES.
21 JUNE 1980 PRESTO TOYOKAWA 21/0138Z TENFLARE 130 FLUX UNITS DURATION 35 MINUTES 21/0040Z 21/0138Z TENFLARE 570 FLUX UNITS DURATION 10 MINUTES 21/0115Z.
BOULDER 21/0220Z SOFLARE M2/2N S17E20 21/0048Z DURATION 72 MINUTES SOFLARE X2/1B N19W91 21/0117Z DURATION 21 MINUTES. TENFLARE 460 FLUX UNITS 21/0117Z DURATION 48 MINUTES.
22 JUNE 1980 PRESTO BOULDER 22/1537Z SOFLARE C9/2S S09W12 22/1315Z DURATION 48 MINUTES.
27 JUNE 1980 PRESTO BOULDER 27/1650Z SOFLARE M6/SB S24W64 27/1613Z DURATION 23 MINUTES. TENFLARE 330 FLUX UNITS 27/1614Z DURATION 5 MINUTES.
28 JUNE 1980 PRESTO TOYOKAWA 28/0305Z TENFLARE 135 FLUX UNITS 28/0244Z DURATION 7 MINUTES.
CULGOORA 28/0257Z SB FLARE AT S29W60 START 0244Z END 0255Z PRODUCED TYPE II BURST START 0252Z AND IN PROGRESS. VERY STRONG III/V PRECEDED TYPE II. SOME WEAK TYPE IV MAY BE PRESENT.
29 JUNE 1980 PRESTO BOULDER 29/0301Z TENFLARE 200 FLUX UNITS 29/0234Z DURATION 6 MINUTES MQ FLARE NO OPTICAL.
TOYOKAWA 29/0430Z TENFLARE 190 FLUX UNITS 29/0233Z DURATION 9 MINUTES.
1330Z BOULDER 29/1041Z TENFLARE 410 FLUX UNITS DURATION 19 MINUTES.
1930Z BOULDER 29/1823Z TENFLARE 190 FLUX UNITS DURATION 6 MINUTES.

SUMMARY OF THE GEOALERT WWA MESSAGES

Message serial number	Date of issue	Date of observation	Wolf number	10 cm solar flux	A index	Active Regions: Location Lat°-Long	Active Regions: No. of Flares: Total	Active Regions: No. of Flares: M	Active Regions: No. of Flares: X	Outstanding events	Forecasts: Date	Forecasts: Location Lat°-Long	Forecasts: Desc*	Alert Situations
153	01	31	163	195	012	S12W81	0	0	0		01	S12W81	Q	SOLALERT 01/01
						S20W77	0	0	0			S20W77	E	MAGNIL
						N10W52	0	0	0			N10W52	Q	
						S18W52	0	0	0			S18W52	Q	
						S11W14	3	0	0			S11W14	A	
						N12W07	0	0	0			N12W07	Q	
						S20E23	0	0	0			S20E23	Q	
						N12E41	0	0	0			N12E41	Q	
						S11E46	0	0	0			S11E46	Q	
154	02	01	175	189	021	S21W88	1	0	0		02	S21W88	E	SOLALERT 02/04
						N10W64	0	0	0			N10W64	Q	MAGQUIET
						S11W27	6	0	0			S11W27	A	
						N11W20	0	0	0			N11W20	Q	
						N26E06	0	0	0			N26E06	Q	
						S21E12	0	0	0			S21E12	Q	
						N12E28	0	0	0			N12E28	Q	
						S12E33	0	0	0			S12E33	Q	
						S11E44	0	0	0			S11E44	Q	
155	03	02	196	179	007	N08W73	0	0	0		03	N08W73	Q	SOLALERT 03/XX
						S11W42	6	0	0			S11W42	A	MAGQUIET
						N11W34	0	0	0			N11W34	Q	
						N17W15	0	0	0			N17W15	Q	
						S20W01	0	0	0			S20W01	Q	
						N13E17	0	0	0			N13E17	Q	
						S11E21	0	0	0			S11E21	Q	
						S10E32	0	0	0			S10E32	Q	
						N20E36	0	0	0			N20E36	Q	
						S13E77	8	2	0			S13E77	A	
156	04	03	154	174	010	S11W56	3	0	0	Presto Boulder	04	S11W56	E	SOLALERT 04/XX
						N11W47	0	0	0	03/2134Z Soflare		N11W47	Q	MAGQUIET
						S20W14	0	0	0	M7/1B at 2134Z(max)		S20W14	Q	
						N13E04	0	0	0	from region S12E64		N13E04	Q	
						S11E08	0	0	0	Type II and IV		S11E08	Q	
						S21E08	0	0	0	reported by		S21E08	Q	
						N26E13	0	0	0	Culgoora		N26E13	Q	
						S10E18	0	0	0			S10E18	Q	
						S13E63	11	5	0			S13E63	A	
157	05	04	187	177	007	S12W71	7	0	1	Presto Boulder	05	S12W71	E	SOLALERT 05/XX
						N12W61	0	0	0	04/2340Z X1/1B		N12W61	Q	MAGQUIET
						N13W43	0	0	0	S12W71 04/2302Z		N13W43	Q	
						S21W27	0	0	0	duration 8 minutes		S21W27	Q	
						N12W12	0	0	0			N12W12	Q	
						S11W05	2	0	0			S11W05	Q	
						N26W01	1	0	0			N26W01	Q	
						S10E04	0	0	0			S10E04	Q	
						S14E50	6	2	0			S14E50	A	
						N18E58	0	0	0			N18E58	Q	
158	06	05	204	172	006	S11W83	7	0	0		06	S11W83	A	SOLALERT 06/07
						N11W74	0	0	0			N11W74	Q	MAGALERT MINOR 06/07
						N13W56	3	0	0			N13W56	E	
						S21W40	0	0	0			S21W40	Q	
						N12W25	0	0	0			N12W25	Q	
						S12W18	0	0	0			S12W18	Q	
						N26W13	0	0	0			N26W13	Q	
						S12W12	0	0	0			S12W12	Q	
						S13E36	7	1	0			S13E36	A	
						N19E44	0	0	0			N19E44	Q	
						S07E52	0	0	0			S07E52	Q	
						S24E58	0	0	0			S24E58	Q	
159	07	06	182	167	009	N12W86	0	0	0	Presto Boulder	07	N12W86	Q	SOLALERT 07/XX
						N14W68	7	1	0	06/2206Z Tenflare		N14W68	E	MAGALERT 07/09
						S21W53	0	0	0	290 Flux Units		S21W53	Q	
						N12W38	0	0	0	06/2130Z duration		N12W32	Q	
						S11W32	2	0	0	3 minutes		S11W32	Q	
						N27W26	0	0	0			N27W26	Q	
						S11W25	4	0	0			S11W25	Q	
						S12E22	9	0	0			S12E22	A	
						N19E32	0	0	0			N19E32	Q	
						S08E36	0	0	0			S08E36	Q	
						S23E44	0	0	0			S23E44	Q	
160	08	07	180	165	021	N13W83	8	2	0		08	N13W83	E	SOLNIL
						S21W65	0	0	0			S21W83	Q	MAGALERT 08/XX
						N11W52	0	0	0			N11W52	Q	
						S12W46	0	0	0			S12W46	Q	
						N26W42	0	0	0			N26W42	Q	
						S11W33	1	0	0			S11W33	Q	
						S09W23	0	0	0			S09W23	Q	
						S13E09	0	0	0			S13E09	E	
						N18E17	0	0	0			N18E17	E	
						S07E24	0	0	0			S07E24	Q	
						S24E30	0	0	0			S24E30	Q	

ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

JUNE 1980

SUMMARY OF THE GEOALERT WWA MESSAGES

Message serial number	Date of issue	Date of observation	Wolf number	10 cm solar flux	A index	Active Regions: Location Lat-Long	No. of Flares: Total	M	X	Outstanding events	Forecasts: Date	Location Lat-Long	Desc*	Alert Situations
161	09	08	235	181	017	S21W78	0	0	0		09	S21W78	Q	SOLQUIET
						N11W65	0	0	0			N11W65	Q	MAGNIL
						S12W58	1	0	0			S12W58	Q	
						N25W52	0	0	0			N25W52	Q	
						S12W51	0	0	0			S12W51	Q	
						S11W43	0	0	0			S11W43	Q	
						N10W38	0	0	0			N10W38	Q	
						S13W05	2	1	0			S13W05	A	
						N18E04	0	0	0			N18E04	Q	
						S07E11	0	0	0			S07E11	Q	
						S23E18	0	0	0			S23E18	Q	
						N14E33	1	0	0			N14E33	Q	
						S23E41	0	0	0			S23E41	Q	
						N19E76	1	0	0			N19E76	Q	
162	10	09	248	173	010	S20W92	0	0	0		10	S20W92	Q	SOLQUIET
						N12W79	0	0	0			N12W79	Q	MAGQUIET
						S11W73	0	0	0			S11W73	Q	
						N25W66	0	0	0			N25W66	Q	
						N09W54	0	0	0			N09W54	Q	
						S14W18	2	0	0			S14W18	A	
						N18W10	0	0	0			N18W10	Q	
						S26W09	2	0	0			S26W08	E	
						S18W06	0	0	0			S18W06	Q	
						N21W01	0	0	0			N21W01	Q	
						N13W00	0	0	0			N12W00	Q	
						N14E20	0	0	0			N14E20	Q	
						S22E27	0	0	0			S22E27	Q	
						N18E64	0	0	0			N18E64	Q	
						S23E66	0	0	0			S23E66	Q	
						S12E73	0	0	0			S12E73	E	
163	11	10	231	171	026	N25W83	0	0	0		11	N25W83	Q	SOLQUIET
						S14W32	1	0	0			S14W32	E	MAGQUIET
						N19W23	1	0	0			N19W23	Q	
						S25W23	1	0	0			S25W23	Q	
						S15W21	0	0	0			S15W21	E	
						N14W15	0	0	0			N14W15	Q	
						N14E04	0	0	0			N14E04	Q	
						S22E24	0	0	0			N19E50	Q	
						N19E50	3	0	0			S22E53	Q	
						S22E53	0	0	0			S13E61	E	
						S13E61	2	0	0					
164	12	11	253	177	025	S15W44	3	0	0		12	S15W44	E	SOLQUIET
						N28W36	0	0	0			N28W36	Q	MAGQUIET
						S25W35	0	0	0			S25W35	Q	
						N17W33	1	0	0			N17W33	Q	
						S15W33	0	0	0			S15W33	E	
						N13W28	1	0	0			N13W28	Q	
						N13W10	0	0	0			N13W10	Q	
						S22E02	0	0	0			S22E02	Q	
						N13E35	0	0	0			N13E35	Q	
						N18E36	1	0	0			N18E36	E	
						S23E38	0	0	0			S23E38	Q	
						S13E49	0	0	0			S13E49	Q	
165	13	12	230	186	021	S15W55	1	0	0		13	S15W55	E	SOLQUIET
						S25W49	2	0	0			S25W49	Q	MAGQUIET
						S14W46	0	0	0			S14W46	E	
						N22W43	5	0	0			N22W43	Q	
						N14W42	0	0	0			N14W42	Q	
						N08W25	0	0	0			N08W25	Q	
						N14W23	5	0	0			N14W23	Q	
						S22W01	0	0	0			S22W01	Q	
						N12E21	8	0	0			N12E21	E	
						N18E22	5	0	0			N18E22	E	
						S12E32	4	0	0			S12E32	Q	
						N19E83	0	0	0			N19E83	Q	
166	14	13	202	181	032	S14W67	1	0	0		14	S14W67	Q	SOLQUIET
						S26W60	0	0	0			S26W60	Q	MAGALERT 14/14
						S15W59	2	0	0			S15W59	E	
						N23W55	1	0	0			N23W55	Q	
						N14W53	0	0	0			N14W53	Q	
						N14W35	1	0	0			N14W35	Q	
						S23W15	0	0	0			S23W15	Q	
						N18E09	12	0	0			N18E09	E	
						N13E09	2	0	0			N13E09	E	
						S13E18	9	0	0			S13E18	Q	
						N17E66	0	0	0			N17E66	Q	
167	15	14	193	208	013	S14W77	0	0	0		15	S14W77	Q	SOLQUIET
						S25W74	1	0	0			S25W74	Q	MAGNIL
						S14W72	0	0	0			S14W72	Q	
						N13W69	1	0	0			N13W72	Q	
						N23W65	0	0	0			N23W65	Q	
						N14W49	1	0	0			N14W49	Q	
						S22W30	0	0	0			S22W30	Q	
						N17W05	3	0	0			N17W05	E	

ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

JUNE 1980

SUMMARY OF THE GEOALERT WWA MESSAGES

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						N12W04	0	0	0			N12W04	E	
						S23E02	0	0	0			S23E02	Q	
						S12E06	1	0	0			S12E06	Q	
						N17E54	1	0	0			N17E54	Q	
168	16	15	182	181	010	S15W86	0	0	0		16	S15W86	Q	SOLQUIET
						N14W81	0	0	0			N14W81	Q	MAGQUIET
						N24W78	0	0	0			N24W78	Q	
						N14W63	1	0	0			N14W63	Q	
						S21W44	0	0	0			S21W44	Q	
						N12W18	1	0	0			N12W18	Q	
						N18W18	2	0	0			N18W18	E	
						S13W09	0	0	0			S13W09	E	
						N18E31	0	0	0			N18E31	Q	
						N17E41	0	0	0			N17E41	Q	
						S08E67	0	0	0			S08E67	Q	
						S13E78	2	0	0			S13E78	E	
169	17	16	170	187	009	N14W76	0	0	0		17	N14W76	Q	SOLQUIET
						S22W56	0	0	0			S22W56	Q	MAGQUIET
						N17W32	0	0	0			N17W32	E	
						N12W31	0	0	0			N12W31	Q	
						S13W23	0	0	0			S12W23	E	
						N16E28	0	0	0			N16E28	Q	
						S07E55	0	0	0			S07E55	Q	
						S12E66	4	0	0			S12E66	E	
						S21E75	0	0	0			S21E75	E	
170	18	17	180	191	007	S22W68	0	0	0		18	S22W68	Q	SOLQUIET
						N12W45	1	0	0			N12W45	Q	MAGQUIET
						N18W44	0	0	0			N18W44	E	
						S13W36	2	0	0			S13W36	Q	
						N11W01	0	0	0			N11W01	Q	
						N16E15	1	0	0			N16E15	E	
						S09E42	0	0	0			S09E42	Q	
						S13E53	5	0	0			S13E53	E	
						S21E62	1	0	0			S21E62	Q	
						S28E70	0	0	0			S28E70	Q	
						N24E76	0	0	0			N24E76	Q	
171	19	18	254	201	002	S23W79	1	0	0		19	S23W79	Q	SOLQUIET
						N13W58	0	0	0			N13W58	Q	MAGQUIET
						N19W57	0	0	0			N19W57	E	
						S12W50	1	0	0			S12W50	Q	
						N10W14	0	0	0			N10W14	Q	
						N16W08	0	0	0			N16W08	Q	
						N18E03	0	0	0			N18E03	Q	
						N22E11	0	0	0			N22E11	Q	
						S18E20	0	0	0			S18E20	Q	
						S26E22	0	0	0			S26E22	Q	
						S08E29	0	0	0			S08E29	Q	
						S12E40	0	0	0			S12E40	E	
						S20E50	1	0	0			S20E50	Q	
						S29E58	2	0	0			S29E58	E	
						N25E63	0	0	0			N25E63	Q	
						S12E69	0	0	0			S12E69	Q	
172	20	19	226	212	004	N11W72	0	0	0	Presto Boulder 19/2005Z SOFLARE M2/2B S23E53 19/1948Z DURATION 41 MINUTES	20	N11W72	Q	SOLALERT 20/XX
						N18W71	1	0	0			N18W71	Q	MAGQUIET
						S13W65	1	0	0			S13W65	Q	
						N17W11	1	0	0			N17W11	Q	
						N22W04	0	0	0			N22W04	Q	
						S08E14	0	0	0			S08E14	Q	
						S12E27	2	0	0			S12E27	E	
						S18E32	0	0	0			S18E32	E	
						S22E36	0	0	0			S22E36	E	
						S28E44	3	1	0			S28E44	A	
						N25E49	0	0	0			N25E49	Q	
						S11E54	0	0	0			S11E54	Q	
						S13E88	1	1	0			S13E88	A	
173	21	20	255	224	005	N18W87	0	0	0	Presto Toyokawa 21/0138Z 130 units at 0040Z duration 35 minutes. 570 flux units at 0115Z duration 10 minutes Presto Boulder X2/1B N19W91 21/ 0117Z duration 21 Minutes. Soflare M2/2N S17E20 21/ 0048Z duration 72 minutes. Tenflare 460 flux units 21/ 0040Z duration 48 minutes.	21	N18W87	Q	SOLALERT 21/XX
						S12W82	0	0	0			S12W82	Q	MAGQUIET
						N17W24	2	0	0			N17W24	Q	
						N22W19	1	0	0			N22W19	E	
						S09E01	1	0	0			S09E01	Q	
						S12E13	2	0	0			S12E13	E	
						S16E16	0	0	0			S16E16	E	
						S20E23	0	0	0			S20E23	E	
						S29E31	5	0	0			S29E31	A	
						N25E36	0	0	0			N25E36	Q	
						S12E41	4	0	0			S12E41	Q	
						S15E71	0	0	0			S15E71	E	
						S21W73	0	0	0			S21W73	Q	

ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

JUNE 1980

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174	22	21	270	221	007	N17W40	0	0	0		22	N17W40	Q	SOLALERT 22/23
						S14W39	0	0	0			S14W39	Q	MAGQUIET
						N23W30	2	0	0			N23W30	E	
						S22W28	0	0	0			S22W28	Q	
						S18W26	0	0	0			S18W26	Q	
						S10W10	0	0	0			S10W10	Q	
						S10W00	1	0	0			S10W00	E	
						S14E03	2	1	0			S14E03	A	
						S20E11	0	0	0			S20E11	Q	
						S27E17	2	0	0			S27E17	E	
						N25E23	0	0	0			N25E23	Q	
						S12E26	0	0	0			S12E26	Q	
						S22E29	0	0	0			S22E29	Q	
						S13E57	1	0	0			S13E57	E	
						S21E65	0	0	0			S21E65	Q	
						S10E67	0	0	0			S10E67	Q	
						N13E75	0	0	0			N13E75	Q	
175	23	22	248	251	006	S17W56	0	0	0		23	S17W56	Q	SOLALERT 23/25
						N16W54	0	0	0	Presto Boulder 22/1315Z C9/2B S09W12 Duration 48 minutes		N16W54	Q	MAGALERT 23/24
						N22W44	4	2	0			N22W44	A	
						S11W23	1	0	0			S11W23	E	
						S11W15	2	0	0			S11W15	A	
						S16W11	1	0	0			S16W11	E	
						S19W02	1	0	0			S19W02	Q	
						S28E04	5	0	0			S28E04	E	
						S22E09	4	0	0			S22E09	E	
						N25E10	0	0	0			N25E10	Q	
						S12E14	0	0	0			S12E14	Q	
						S14E43	0	0	0			S14E43	Q	
						S21E52	0	0	0			S21E52	Q	
						S10E52	0	0	0			S10E52	Q	
						N13E61	0	0	0			N13E61	Q	
176	24	23	322	244	008	N16W69	1	0	0		24	N16W69	Q	SOLALERT 24/XX
						N22W57	6	3	0			N22W57	A	MAGNIL
						N17W56	0	0	0			N17W56	Q	
						S26W52	0	0	0			S26W52	Q	
						S12W34	0	0	0			S12W34	Q	
						S11W28	3	0	0			S11W28	E	
						S18W24	0	0	0			S18W24	Q	
						S20W15	1	0	0			S20W15	E	
						S29W10	7	1	0			S29W10	A	
						N25W02	0	0	0			N25W02	Q	
						S23W02	6	0	0			S23W02	A	
						S12E02	0	0	0			S12E02	Q	
						S13E31	1	0	0			S13E31	E	
						S21E39	0	0	0			S21E39	Q	
						S11E39	3	0	0			S11E39	Q	
						N13E49	0	0	0			N13E49	Q	
177	25	24	339	244	014	N16W80	0	0	0		25	N16W80	Q	SOLALERT 25/26
						N22W70	3	0	0			N22W70	A	MAGQUIET
						N16W69	0	0	0			N16W69	Q	
						S10W47	1	0	0			S10W47	E	
						S11W41	2	0	0			S11W41	E	
						S20W27	0	0	0			S20W27	E	
						S28W22	8	0	0			S28W22	A	
						S23W15	10	1	0			S23W15	A	
						S12W12	0	0	0			S12W12	Q	
						S13E17	2	0	0			S13E17	E	
						S20E25	0	0	0			S20E25	Q	
						S10E25	0	0	0			S10E25	E	
						N13E36	1	0	0			N13E36	Q	
						N18E72	0	0	0			N18E72	Q	
						S18E73	0	0	0			S18E73	Q	
178	26	25	262	231	010	N21W82	2	0	0		26	N21W82	E	SOLALERT 26/27
						S10W62	1	0	0			S10W62	Q	MAGQUIET
						S12W54	1	0	0			S12W54	E	
						S22W42	2	0	0			S22W42	E	
						S29W36	10	1	0			S29W36	A	
						S23W28	4	0	0			S23W28	A	
						S11W27	0	0	0			S11W27	Q	
						S13E05	0	0	0			S13E05	Q	
						S21E13	0	0	0			S21E13	Q	
						S10E13	0	0	0			S10E13	Q	
						N13E23	0	0	0			N13E23	Q	
						N18E58	3	0	0			N18E58	E	
						S18E59	0	0	0			S18E59	Q	

SUMMARY OF

Message serial number	Date of issu
179	27
180	28
181	29
182	30
183	01

A=Active

ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

JUNE 1980

SUMMARY OF THE GEOALERT WWA MESSAGES

Message serial number	Date of issue	Date of observation	Wolf number	10 cm solar flux	A index	Active Regions: Location Lat-Long	No. of Flares: Total	M	X	Outstanding events	Forecasts: Date	Location Lat-Long	Desc*	Alert Situations
179	27	26	224	219	012	S10W76	0	0	0		27	S10W76	Q	SOLALERT 27/28
						S12W68	0	0	0			S12W68	Q	MAGQUIET
						S21W55	0	0	0			S21W55	E	
						S28W51	6	0	0			S28W51	A	
						S23W43	1	0	0			S23W43	A	
						S12W38	0	0	0			S12W38	Q	
						S14W08	0	0	0			S14W08	Q	
						S21W01	1	0	0			S21W01	Q	
						S10W01	0	0	0			S10W01	Q	
						N13E10	0	0	0			N13E10	Q	
						N17E45	0	0	0			N17E45	E	
						S19E47	0	0	0			S19E47	Q	
180	28	27	235	206	005	S21W68	1	0	0	Presto Boulder 27/1650Z Soflare M6/SB S24W64 27/1613Z duration 23 minutes. Tenflare 330 flux units 27/1614Z duration 5 minutes.	28	S21W68	E	SOLALERT 28/29
						S28W64	8	2	0			S28W64	A	MAGQUIET
						N12W58	1	0	0			N12W58	Q	
						S23W55	3	0	0			S23W55	E	
						S14W22	0	0	0			S14W22	Q	
						S20W14	0	0	0			S20W14	Q	
						S11W14	0	0	0			S11W14	Q	
						N12W05	0	0	0			N12W05	Q	
						S12E28	0	0	0			S12E28	Q	
						N18E32	0	0	0			N18E32	Q	
						S18E33	1	0	0			S18E33	Q	
						S25E64	0	0	0			S25E64	Q	
						S10E65	0	0	0			S10E65	Q	
						N08E68	0	0	0			N08E68	Q	
181	29	28	214	196	003	N13W74	0	0	0	Presto Toyokawa 28/0305Z Tenflare 135 flux units 28/0244Z duration 7 minutes.	29	N13W74	Q	SOLALERT 29/30
						S28W73	5	1	0			S28W73	E	MAGQUIET
						S25W67	1	1	0			S25W67	E	
						S33W60	0	0	0			S33W60	Q	
						S13W34	0	0	0			S13W34	Q	
						S10W28	0	0	0			S10W28	Q	
						N12W18	0	0	0			N12W18	Q	
						S09E03	0	0	0			S09E03	Q	
						N18E20	0	0	0			N18E20	Q	
						S17E23	3	1	0			S17E23	Q	
						S25E53	0	0	0			S25E53	Q	
						N11E55	0	0	0			N11E55	Q	
182	30	29	175	183	003	S27W92	1	1	0	Presto Toyokawa Tenflare 190 flux units 29/0233Z duration 9 minutes. Boulder M3 event 29/0234Z SW26 Tenflare 200 flux units Type II/IV sweep. Tenflare 29/1041Z 410 flux units duration 19 minutes. Tenflare 29/1823Z 190 flux units duration 6 minutes.	30	S27W92	Q	SOLALERT 30/01
						N13W88	0	0	0			N13W88	Q	MAGQUIET
						S30W84	0	0	0			S30W84	Q	
						S24W83	0	0	0			S24W83	E	
						S13W48	0	0	0			S13W48	Q	
						S20W41	0	0	0			S20W41	Q	
						S10W40	1	1	0			S10W40	E	
						N12W33	0	0	0			N12W33	Q	
						S09W12	0	0	0			S09W12	Q	
						N18E05	0	0	0			N18E05	Q	
						N10E39	0	0	0			N10E39	Q	
183	01	30	110	177	009	S14W63	3	0	0		01	S14W63	Q	SOLNIL
						S11W56	1	0	0			S11W56	E	MAGQUIET
						S11W26	6	0	0			S11W26	Q	
						N17W08	0	0	0			N17W08	Q	
						N10E25	1	0	0			N10E25	Q	
						S13E70	0	0	0			S13E70	Q	

A=Active C=Caution D=Doubtful E=Eruptive MF=Major Flare OG=Other Groups P=Proton Q=Quiet

RELATIVE SUNSPOT NUMBERS

ZURICH, R_Z

	1979 FINAL						1980 PROVISIONAL					
DAY	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN
1	158	115	165	213	224	122	153	200	101	105	121	152
2	168	96	141	187	157	156	158	107	160	145	149	124
3	205	121	148	167	155	107	148	105	151	133	148	128
4	219	110	157	156	172	210	173	102	136	123	166	141
5	232	93	139	160	166	232	190	170	130	154	192	150
6	249	104	139	160	203	206	207	215	132	105	145	131
7	223	110	170	179	240	212	210	240	120	200	147	149
8	219	132	192	190	200	262	225	230	101	199	157	156
9	191	115	190	210	279	200	262	172	103	229	160	164
10	163	92	177	170	302	260	224	140	69	214	144	160
11	155	84	167	103	295	242	245	140	67	245	142	172
12	145	87	156	109	240	261	210	135	70	257	143	166
13	142	91	175	201	103	235	101	131	71	259	150	161
14	127	112	106	213	210	230	170	146	60	203	166	136
15	121	135	177	190	106	225	146	160	52	102	157	129
16	107	115	163	105	166	215	166	163	36	154	140	134
17	109	124	155	214	230	100	160	132	67	126	173	129
18	109	143	177	224	172	151	130	122	63	127	215	146
19	135	176	195	221	174	130	110	129	119	134	210	166
20	150	107	191	214	153	126	115	139	100	173	230	179
21	151	210	104	209	124	124	121	114	105	143	233	191
22	152	216	170	191	116	111	123	99	130	122	244	196
23	154	206	219	179	142	116	124	100	149	95	246	190
24	143	203	236	161	162	130	120	122	175	112	256	193
25	144	201	252	153	155	143	107	121	176	139	229	179
26	142	102	261	145	141	116	127	152	191	171	220	166
27	146	109	256	136	115	93	120	175	205	156	223	105
28	132	174	239	142	119	90	130	197	221	149	190	100
29	140	150	235	104	90	121	122	101	191	145	170	149
30	150	150	233	190	116	139	145		102	130	150	97
31	144	160		223		135	174		103		130	
MEAN	159.4	142.2	100.4	106.2	103.3	176.3	102.2	159.3	126.5	166.6	179.7	157.2

1979 YEARLY MEAN = 155.4

DAILY SOLAR FLUX AT 2800 MHz
OTTAWA ARO

FLUX ADJUSTED TO 1 A.U., S_u

	1979						1980					
DAY	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN
1	186.3	149.1	175.8	212.8	211.6	161.9	189.1	212.6*	175.7	181.9	210.5	191.2
2	200.9*	143.9*	180.1	211.5	209.5	172.0*	199.9	217.9	172.9	181.1*	223.0	104.0
3	213.4	145.1	100.0	204.7	207.5	195.1*	211.9*	225.7	170.2*	176.1	221.2	170.0
4	210.1	141.7	175.3*	197.7*	214.2	221.0	212.4*	231.7	172.7*	104.3*	223.1*	101.5
5	204.5	141.6	177.1	192.0*	235.5	223.4*	207.7	210.9	171.0	209.7*	221.9	170.4
6	211.3	149.5	100.4*	195.5	273.2*	223.4	222.1	221.7	169.4	230.4*	203.5	172.4
7	207.2	151.1	106.3	197.0	206.9*	222.6	220.0	223.9*	166.3	236.1*	203.4	165.7*
0	206.7	152.7	103.6	200.3	310.1	220.9*	220.1*	210.7	164.9	241.7	200.2*	172.4*
9	197.9*	157.3	107.4	209.5	314.4*	232.4	240.9*	200.2*	161.3	244.7*	193.6	174.3*
10	105.9	152.1*	104.6	200.7	367.0*	230.3	253.0*	204.6*	153.9	249.0	191.1	176.1
11	170.6	154.4	101.5*	211.0	325.7*	230.6*	255.7*	213.7	147.0	249.9	191.4*	102.9
12	170.1	144.0	101.7	210.4	294.4	232.3	245.1*	213.7	130.0	245.0	109.5	109.3*
13	101.4	155.0	106.1	239.1	272.7	231.7	221.0	217.9	144.0	232.0	192.9	106.5
14	154.7*	150.2*	192.0*	230.4	256.4	230.3	203.0	201.0	141.2	226.3	202.9	100.0*
15	151.1	107.0	193.0	230.7	239.7*	231.0	200.0	201.2*	139.3	206.1*	199.0	106.4
16	143.0	104.0	196.3*	232.3	230.0	210.3	100.0	200.2	137.3	192.4	202.9*	193.3
17	142.7	105.0	202.7*	226.0	231.0	202.2	106.9	102.0*	142.9	191.9	207.5*	197.4
10	141.2	100.0	215.7	230.0	231.9	107.4	177.5	100.0*	147.4	201.4	214.3*	207.0
19	143.0	106.4	210.1*	237.3*	214.0	103.0	104.4	177.3	102.3	214.5*	234.2	219.0*
20	146.0	204.2*	213.9*	230.7*	205.9	100.0*	150.5	174.7	102.1	215.0	244.7*	227.9*
21	143.7*	207.0*	210.4	230.1	109.0	176.7*	153.4	109.0	102.4	207.7	252.0	220.0
22	155.7	223.2	210.5	221.9	102.5	175.3	150.2*	107.3	102.5	199.2	276.0	250.0*
23	103.1*	210.0	224.2*	214.9*	103.2	100.0	100.7	100.1	172.4*	100.2	209.5	251.5
24	100.0	225.2	230.7	225.0*	175.2*	100.2	171.1*	157.2*	172.4	100.3	290.2	245.9*
25	104.5	229.3*	235.5	215.2	105.0*	102.0	171.3*	105.7	102.5*	105.9	292.0	230.0*
26	105.0	223.3	229.9*	202.9	101.0	159.7	170.0*	109.0	105.2	100.0	204.2	226.3
27	159.1*	212.0	220.7*	211.2	155.7	153.0*	190.0*	173.2	195.3*	200.0*	201.2*	212.0
20	150.1	214.2	233.0	210.0	150.1	103.1	194.0	171.7*	203.5	203.7	200.0*	199.7*
29	150.7	197.0	225.0	214.0	154.0	174.0	197.0	170.7*	199.9	203.5*	252.3	100.0
30	100.3	107.0	231.9	213.7*	152.2	105.5	197.9	.	194.3*	200.9	222.7	103.4
31	152.4	179.9	.	214.9*	.	100.9	213.9*	.	107.2*	.	200.0	.
MEAN	171.4	177.0	202.3	216.4	226.0	197.2	199.0	195.1	166.5	209.3	229.1	199.3

* adjusted for burst
A = interpolated data point

DAILY SOLAR INDICES

JUNE 1980

JUNE 1980	YEAR DAY	BARTELS 27-DAY CYCLE NUMBER	SUNSPOT NUMBERS		OBSERVED FLUX	SOLAR FLUX ADJUSTED TO 1 A.U.								
			R_Z	$R_{A'}$	OTTAWA 2800	AFGL 15400	AFGL 8800	AFGL 4995	OTTAWA 2800	AFGL 2695	AFGL 1415	AFGL 606	AFGL 410	AFGL 245
1	153	9	152	147	185.8	531	358	199	191.2	181	129		39	
2	154	10	124	137	178.8	519	344	192	184.0	175	124		41	
3	155	11	128	145	173.8	206	265	144	178.8	125	127		32	
4	156	12	141	155	176.4	526	376	197	181.5	172	125		44	
5	157	13	150	153	173.2	534	364	194	178.4	168	119		50	
6	158	14	131	136	167.4				172.4					
7	151	15	149	129	160.9*	512	312	168	165.7*	159	122		46	
8	160	16	156	144	167.4*	415	308	160	172.4*	157	126		40	
9	161	17	164	150	169.1*	529	357	180	174.3*	168	124		40	
10	162	18	168	161	170.8	517	354	183	176.1	174	129		39	
11	163	19	172	164	177.4	522	379	187	182.9	178	127		38	
12	164	20	166	174	183.6*	535	363	188	189.3*	184	132		36	
13	165	21	161	168	180.7	516	376	187	186.5	172	129		42	
14	166	22	136	148	182.9*	523	359	192	188.8*	177	134		43	
15	167	23	129	128	180.6	530	362	199	186.4	181	140		44	
16	168	24	134	122	187.3	535	361	200	193.3	184	133		44	
17	169	25	129	149	191.3	523	360	202	197.4	191	139		52	
18	170	26	146	153	201.0	525	355	205	207.6	194	142		48	
19	171	27	166	161	212.8*	538	376	219	219.8*	203	153		45	
20	172	1	179	187	220.6*	535	401	232	227.9*	218	168			
21	173	2	191	206	220.7	529	395	225	228.0	221	166		42	
22	174	3	196	207	242.0*	550	421	247	250.0*	241	171		43	
23	175	4	190	203	243.5	532	382	239	251.5	236	152		43	
24	176	5	193	216	238.0*	531	388	242	245.9*	230	158		44	
25	177	6	179	196	231.2*	540	399	253	238.8*	233				
26	178	7	166	177	218.9	536	359	216	226.3	211	144		44	
27	179	8	185	177	205.6	530	367	220	212.6	203	136		41	
28	180	9	188	165	193.1*	534	365	203	199.7*	192	139		40	
29	181	10	149	112	182.6	508	319	184	188.8	177	131		49	
30	182	11	97	94	177.4				183.4					
MEAN			157.2	158.8	193.2	513	362	202	199.3	189	138		42	

* Adjusted for burst.

OBSERVED AND PREDICTED SOLAR ACTIVITY INDICES

	SUNSPOT NUMBERS						2800 MHz FLUX adjusted to 1 AU	
	Rz		Ra		Rs		Sa	
Date	Monthly Mean	Smoothed	Monthly Mean	Smoothed	Monthly Mean	Smoothed	Monthly Mean	Smoothed
Jul 77	21.4	29	18.3	27	28.4	33	83.7	88
Aug	30.1	33	27.6	32	31.3	37	86.4	92
Sep	44.0	39	41.9	37	47.0	43	100.9	97
Oct	43.8	46	45.5	44	42.0	49	96.3	103
Nov	29.1	52	28.4	50	36.9	56	91.6	109
Dec	43.2	57	42.8	55	44.8	61	98.9	114
Jan 78	51.9	61	48.8	59	52.6	66	106.1	118
Feb	93.6	64	90.9	61	91.1	69	141.8	122
Mar	76.5	70	73.9	66	89.5	73	140.3	125
Apr	99.7	77	97.5	72	100.5	79	150.5	130
May	82.7	83	79.6	78	99.7	84	149.7	135
Jun	95.1	89	88.0	84	96.5	90	146.8	141
Jul	70.4	97	58.1	92	84.2	97	135.2	147
Aug	58.1	104	48.1	98	64.3	104	116.9	153
Sep	138.2	108	128.1	103	110.4	108	159.6	158
Oct	125.1	111	116.0	105	107.7	111	157.1	160
Nov	97.9	113	92.8	107	98.1	113	148.2	162
Dec	122.7	118	121.0	111	121.6	116	170.0	165
Jan 79	166.6	124	164.4	116	150.2	119	196.5	168
Feb	137.5	131	136.8	123	153.0	124	199.1	172
Mar	138.0	136	132.5	128	136.7	128	184.0	176
Apr	101.5	141	95.8	133	127.0	133	175.0	180
May	134.4	147	121.8	139	120.4	139	168.9	186
Jun	149.5	153	136.4	144	138.9	144	186.0	191
Jul	159.4	156*	140.5	145	123.1	145	171.4	192
Aug	142.2	157*	125.1	144	129.2	145	177.0	192
Sep	188.4	157*	184.0	143	156.5	144	202.3	191
Oct	186.2	158*	178.2	144	171.7	145	216.4	192
Nov	183.3	163*	176.5	149	182.9	149	226.8	196
Dec	176.3	165*	157.6	152	151.0	152	197.2	199
Jan 80	162.2*	164(± 5)*	146.7	151	153.6	151	199.6	---
Feb	159.3*	162(± 8)*	131.0	150	148.7	150	195.1	---
Mar	126.5*	160(±12)*	111.0	148	117.8	148	166.5	---
Apr	166.6*	160(±19)*	148.7	148	164.0	148	209.3	---
May	179.7*	159(±24)*	176.5	147	185.4	147	229.1	---
Jun	157.2*	155(±27)*	158.8	144	153.2	144	199.3	---
Jul	---	151(±32)*	---	141	---	141	---	---
Aug	---	148(±35)*	---	138	---	138	---	---
Sep	---	145(±36)*	---	137	---	137	---	---
Oct	---	144(±37)*	---	136	---	136	---	---
Nov	---	143(±39)*	---	134	---	134	---	---
Dec	---	142(±42)*	---	133	---	133	---	---

*An asterisk denotes a value of the observed monthly mean, or the observed 12-month running mean, or the predicted 12-month average that is based only on preliminary observations of the Zurich relative sunspot number (Rz). Parentheses enclose the 90% confidence limits. Hatched boxes enclose the most recent smoothed values; boxes not shaded enclose predicted values. Ra is the new symbol for R_A'.

SMOOTHED OBSERVED AND PREDICTED SUNSPOT NUMBERS
CYCLE 21

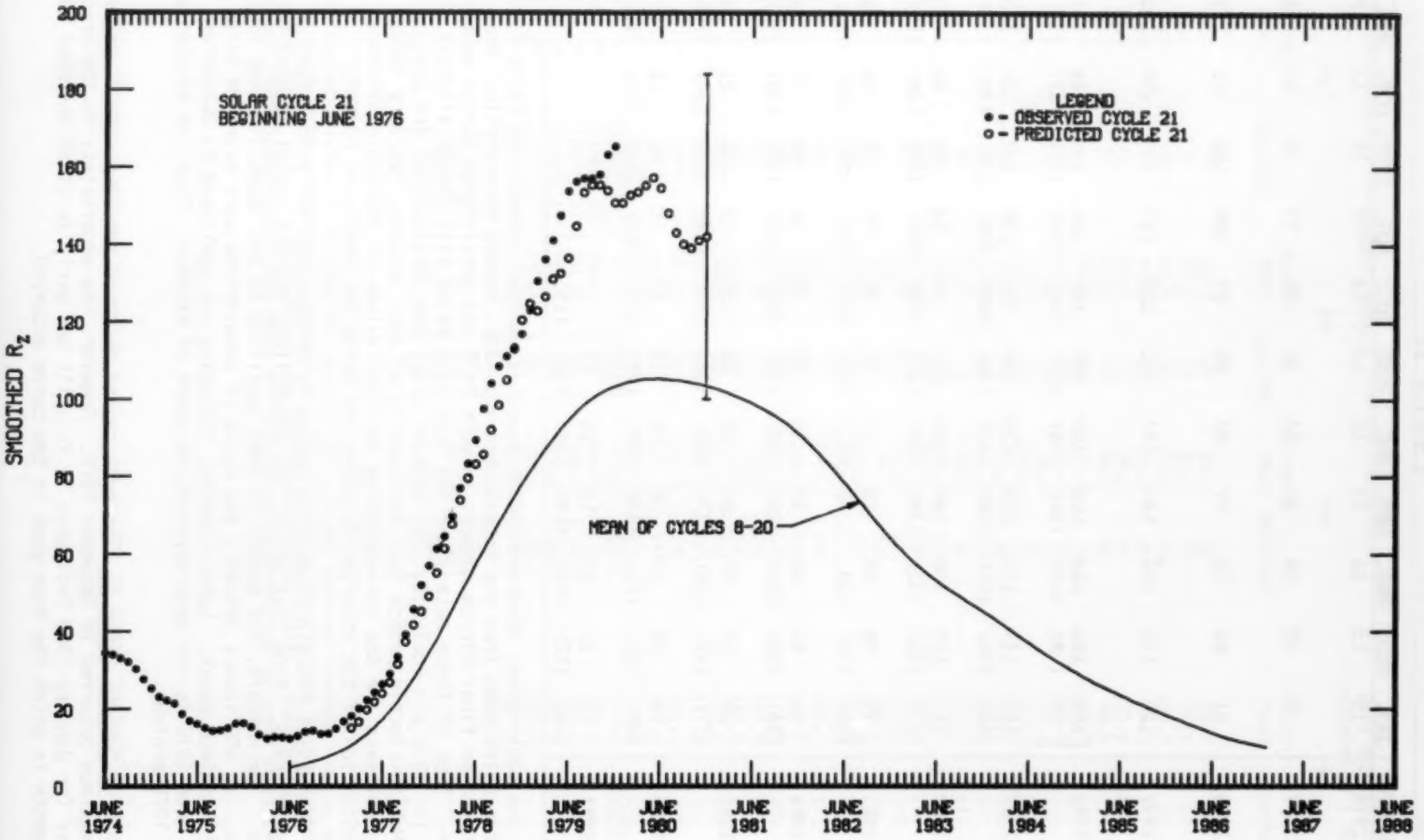
MONTH	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
1976	15	13	12	13	12	12	13	14	14	13	13	15
1977	17	18	20	22	24	26	29	33	39	46	52	57
1978	61	64	70	77	83	89	97	104	108	111	113	118
1979	124	131	136	141	147	153	156	157	157	158	163	165*
1980	164	162	160	160	159	155	151	148	145	144	143	142
	(5)	(8)	(12)	(19)	(24)	(27)	(32)	(35)	(36)	(37)	(39)	(42)
1981	141	141	139	136	133	130	129	128	127	126	123	120
	(45)	(44)	(41)	(40)	(41)	(41)	(40)	(39)	(38)	(38)	(37)	(35)
1982	117	113	110	108	106	103	99	94	89	84	80	77
	(33)	(32)	(32)	(30)	(29)	(27)	(25)	(23)	(23)	(20)	(19)	(19)
1983	73	70	68	66	64	61	59	57	56	54	54	53
	(19)	(19)	(20)	(20)	(21)	(22)	(23)	(25)	(27)	(28)	(30)	(30)
1984	51	49	46	42	39	39	38	36	35	33	31	29
	(30)	(30)	(29)	(29)	(30)	(32)	(32)	(32)	(31)	(29)	(28)	(28)
1985	28	27	27	26	25	24	23	22	22	21	20	20
	(27)	(27)	(26)	(27)	(26)	(25)	(24)	(23)	(23)	(24)	(24)	(24)
1986	19	18	17	16	15	13	12	11	11	11	11	11
	(25)	(25)	(24)	(23)	(22)	(21)	(20)	(19)	(18)	(16)	(15)	(14)
1987	11	11	12	13	14	15	17					
	(12)	(12)	(12)	(12)	(14)	(14)	(15)					

The table gives observed Zürich *smoothed* sunspot numbers for Cycle 21 up to the one calculated from the latest observed data, marked by a vertical bar. They are based on final Zürich numbers through 1979 and provisional Zürich numbers thereafter. Some of these data after the June 1976 value will change slightly when final data for 1980 are included. The numbers after the vertical bar are predictions by the McNish-Lincoln method (see *Explanation of Data Reports*, February 1980). Shown in parentheses are the corresponding absolute values of the 90% confidence interval, an indication of the uncertainty above and below the predicted number.

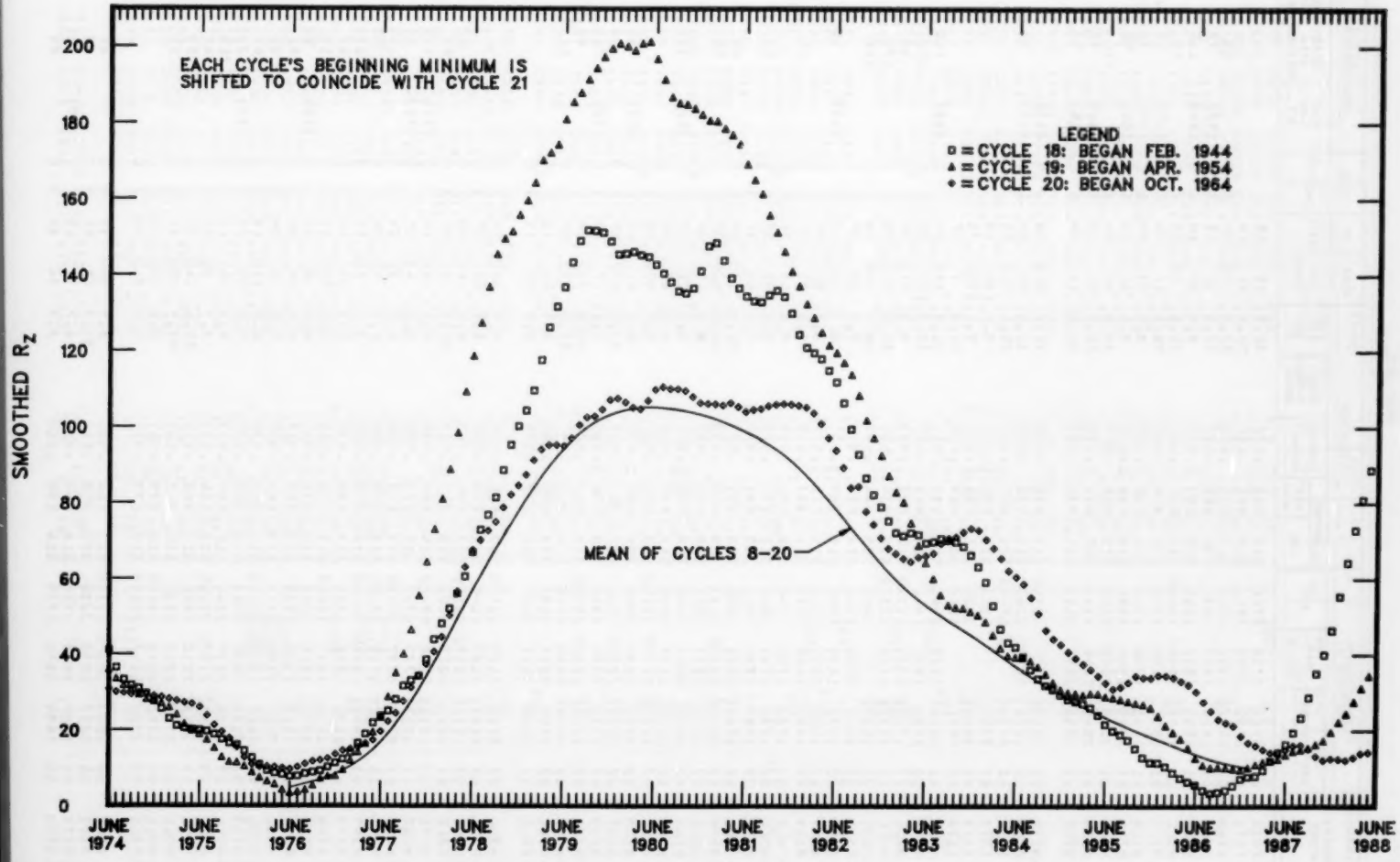
The McNish-Lincoln prediction method is recommended for predictions up to only one year ahead. From that point, the predictions regress rapidly toward the mean value. Furthermore, the method is very sensitive to the identification of a minimum epoch. In SGD issues 390-401, the Cycle 21 predictions were based on March 1976 as the minimum epoch. Later studies, including one published by Waldmeier, show that June 1976 is the more appropriate epoch of minimum. Thus, we adopted a June 1976 minimum.

*MAXIMUM OF SUNSPOT CYCLE 21 The most recent observed smoothed sunspot value suggests the maximum occurred in December 1979. However, the uncertainty in the predicted number for January 1980 indicates it is still too early to claim December 1979 as the month in which the true peak in the curve occurred.

OBSERVED AND ONE-YEAR-AHEAD PREDICTED SMOOTHED SUNSPOT NUMBERS



SUPERPOSITION OF CYCLES 18, 19, AND 20



15
Jun 80

Hα SOLAR FLARES

JUNE 1980

OBSERV-ATORY	OBSERVED UT				LOCATION				CMP. DAY	DURATION — MIN.	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION				CONF.	TYPE	TIME — UT	MEAS. AREA Mil. of Dis	CORR. AREA Sq. Deg.	
ISTA	01	0712	0718	0728	S12	W21	.402		30.7	16	1B						E
ISTA	01	0739	0750	0815	S13	W21	.410		30.7	31	1N						E
ATHN	01	0907E	0910	0919	S13	W22	.423		30.7	12D	SN	2	C		95		
BIGB	01	1520	1522	1530	S31	W25	.622		30.8	10	SB	3	C	1522	70	.8	
BIGB	01	1539	1542	1606	S15	E90	1.000		8.4	27	1N	3	C	1542	110		
HOLL	01	1650E	1655U	1658D	S12	W25	.458		30.8	8D	SB	3	C		50		
BIGB	01	1651	1652	1738	S11	W25	.452		30.8	17	SB	2	C	1652	60	.7	
BIGB	01	1751	1754	1814	S14	E90	1.000		8.5	23	1N	2	C	1754	80		
BIGB	01	1929	1946	2054	S15	E90	1.000		8.6	85	1B	1	C	1946	90		
HOLL	01	2040	2049	2112	S12	W28	.500		30.8	32	SN	3	C		116		
BIGB	01	2046	2048	2110	S07	W90	1.000		26.1	24	1B	1	C	2048	70		
BIGB	01	2048	2050	2102	S11	W30	.523		30.6	14	SN	1	C	2050	50	.6	
MITK	02	0013E		0034D	S12	W30	.528		30.8	21D	SN		P	0030			D
BIGB	02	0021	0029	0043	S10	W30	.519		30.8	22	SN	1	C	0029	90	1.1	
ISTA	02	0724E		0745D	S21	W90	1.000		26.6	21D	3B						A
ISTA	02	0744		1000	S14	E90	1.000		9.1	136	2B						A
ISTA	02	0815E		1000	S16	E90	1.000		9.1	105D	3B						A
ISTA	02	0821		0826	S10	W29	.505		31.2	7	SF						E
MONT	02	0924E	0927	0941	S10	W33	.561		30.9	17D	SN		C	0927	150		
RAMY	02	1156	1331	1441	S05	W44	.697		30.2	165	SN	3	C		162		
HOLL	02	1322E	1324	1333D	S12	E83	.993		8.8	11D	SF	3	C		58		
HOLL	02	1322E	1328	1333D	S12	W36	.609		30.9	11D	SB	3	C		174		
RAMY	02	1407E		1441	S05	W44	.697		30.3	34D	SN	3	C		162		
RAMY	02	1424	1434	1443	S14	E81	.988		8.7	19	SF	3	C				
BIGB	02	1432	1435	1445	S16	E89	1.000		9.3	13	1B	3	C	1435	60		A
RAMY	02	1452	1452	1504	S14	E81	.988		8.7	12	SF	3	C				
RAMY	02	1456	1505	1516	S11	W37	.618		30.8	20	SF	3	C		24		
PALE	02	1733	1741	1746	S12	E81	.988		8.8	13	SF	3	C				
HOLL	02	1736	1747	1806	S12	E78	.979		8.6	30	SF	3	C		42		
PALE	02	1747	1751	1801	S13	E81	.988		8.8	14	SF	3	C				
HOLL	02	2021E	2023	2034	S09	W39	.639		30.9	13D	SF	3	C		52		
RAMY	02	2023E	2023U	2037	S09	W39	.639		30.9	14D	SF	3	C		59		
HOLL	02	2028	2033	2041	S15	E79	.982		8.8	13	SF	3	C				
BIGB	02	2029	2033	2051	S17	E90	1.000		9.6	22	1B	3	C	2033	100		A
HOLL	02	2129	2137	2236	S13	E75	.967		8.5	67	SB	3	C				
PALE	02	2130E	2137U	2216D	S13	E82	.990		9.0	46D	SN	3	C				
BIGB	02	2209	2239	2250	S16	E90	1.000		9.7	41	1B	3	C	2239	40		
MANI	02	2223E	2223U	2240	S10	W42	.680		30.8	17D	SF	2	P		50	.7	F
BIGB	02	2321	2329	2348	S25	E90	1.000		9.7	27	2B	3	C	2329	210		
MANI	02	2332E	2332U	2352D	S10	W43	.692		30.8	23D	SN	2	P		40	.6	F
HOLL	02	2343E	2348	0005	S14	W42	.690		30.8	22D	SF	2	C		55		
HOLL	02	2352	0017	0053	S13	E75	.967		8.6	61	1B	2	C				
PALE	02	2358	0017	0031	S13	E77	.975		8.8	33	1N	3	C				
HOLL	03	0143	0129	0142D	S13	E71	.948		8.4	39D	1N	1	C				
PALE	03	0103	0127	0148	S12	E76	.971		8.7	45	SF	3	C				
MANI	03	0115E	0117U	0119D	S13	E74	.963		8.6	4D	SN	2	P		60	1.4	
PALE	03	0211	0213	0220	S13	W45	.723		30.7	9	SF	3	C		83		
MITK	03	0212E	0216	0246D	S14	E80	.985		9.1	34D	1N		C	0216	120		D
MONT	03	0703E	0703	0707	S15	E73	.959		8.8	4D	SF		C	0703	50		D
MANI	03	0707E	0707	0716D	S13	E73	.958		8.8	9D	SN	2	P		80	1.8	
MANI	03	0741E	0745	0747D	S13	E69	.936		8.5	6D	SN	2	P		50	1.1	
MANI	03	0802E	0806U	0810D	S12	E72	.953		8.7	8D	1N	1	V		100	2.3	
RAMY	03	1134	1205	1304	S13	E69	.936		8.7	90	1B	3	C		87		D
ATHN	03	1139	1207	1221D	S13	E70	.942		8.7	42D	1B	2	C		111		D
MONT	03	1204	1206	1212	S15	E71	.949		8.8	8	SF		C	1206	50		E
RAMY	03	1413	1414	1439	S13	E66	.917		8.5	26	SB	3	C		52		D
HOLL	03	2057	2104	2110	S13	E68	.930		9.0	13	SN	3	C		56		
BOUL	03	2127	2134U	2210D	S14	E67	.925		8.9	43D	1B	3	C		160		
BIGB	03	2128	2130	2203	S15	E69	.937		9.1	35	2B	3	C	2130	300		
HOLL	03	2128	2134	2244	S12	E64	.903		8.7	76	1B	2	C		218		D
PALE	03	2157E	2157U	2206D	S12	E64	.903		8.7	9D	SN	3	C		42		
HOLL	03	2206E	2212	2222	S13	W60	.872		30.4	14D	SN	2	C		39		
HOLL	03	2343E	2348	0005	S14	W42	.691		31.8	22D	SF	2	C		55		
HOLL	03	2352	0016	0016D	S13	E75	.967		9.6	24D	1N	3	C				
PALE	03	2358	0017	0019D	S13	E77	.975		9.8	21D	1N	3	C				
PALE	04	0003	0007U	0036D	S13	E64	.904		8.8	35D	SN	3	C		86		D
PALE	04	0227	0233	0239	S13	W59	.864		30.7	12	SF	3	C		65		
MITK	04	0654	0655	0725	S13	E59	.864		8.7	31	1B		C	0655	190	4.0	E
ATHN	04	0654	0656	0728	S14	E59	.865		8.7	34	SB	3	C		80		

Hα SOLAR FLARES

JUNE 1980

OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM-POR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMP. DAY	MIN.		CONF.	TYPE	TIME UT	MEAS. AREA Mil. of Disk	CORR. AREA Sq. Deg.	
MITK	04	0753	0802	0814D	S16	E59	.868		8.8	21D	1N		C	0802	110	2.3	E
MANI	04	0756E	0759	0816D	S13	E60	.873		8.8	20D	SN	2	P		60	1.2	F
ATHN	04	0835E	0835U	0842D	S14	E58	.857		8.7	7D	SB	3	C		127		
MANI	04	0856E	0856U	0903D	S13	E59	.864		8.8	4D	SN	2	P		100	1.9	F
RAMY	04	1154	1158	1217	N27	E06	.468		4.9	23	SN	3	C		84		
HOLL	04	1305	1305	1356	S13	E00	.219		4.5	51	SF	3	C		48		
HOLL	04	1348	1353	1416	S14	W62	.890		30.9	28	SB	3	C		43		
HOLL	04	1449	1450	1514	S12	E01	.203		4.7	25	SF	3	C		23		
HOLL	04	1454	1456	1504	S13	W65	.911		30.7	10	SN	3	C		13		
HOLL	04	1509	1509	1514	S14	E55	.830		8.8	5	SN	3	C		16		
RAMY	04	1509	1509	1516	S14	E53	.811		8.6	7	SF	3	C		47		
RAMY	04	1645	1648	1659	S12	W68	.930		30.6	14	SN	3	C		35		
HOLL	04	1646	1648	1654	S14	W67	.925		30.7	8	SN	3	C		19		
HOLL	04	1742E	1745U	1810D	S12	W69	.936		30.6	28D	SB	2	C		72		
HOLL	04	1752E	1752U	1759D	S14	E61	.882		9.3	7D	SF	2	C		19		
HOLL	04	1836	1837	1845	S13	E52	.799		8.7	9	SN	3	C		77		
MITK	04	2256	2259	2312	S13	W68	.930		30.9	16	1N		C	2259	100		DH
HOLL	04	2257	2301	2314	S14	W69	.937		30.8	17	1B	3	C		168		
PALE	04	2257	2301	2331D	S14	W69	.937		30.8	34D	1B	3	C		186		D
HOLL	04	2317	0008	0101	S11	E60	.871		9.5	104	1B	2	C		198		D
MITK	04	2328	2345	2426	S13	W05	.235		4.6	58	SF		C	2345			E
MANI	04	2330	2334	2347D	S11	W06	.212		4.5	17D	SN	2	P		50	.5	F
MITK	04	2338E	2351	2412	S10	W75	.967		30.4	34D	1N		C	2351	150		D
HOLL	04	2352	0002	0025	S11	W55	.826		31.9	33	SF	2	C		38		
MITK	05	0022	0031	0122	S15	E55	.832		9.1	60	1N		C	0031	130	2.4	E
HOLL	05	0022	0027	0122	S13	E57	.847		9.3	60	SN	3	C		115		
BIGB	05	0023	0030	0120	S15	E55	.832		9.1	57	SB	3	C	0030	110	2.0	
PALE	05	0025	0026	0046	S15	E54	.823		9.1	21	SF	3	C		48		D
MANI	05	0030E	0030U	0039D	S13	E58	.856		9.4	9D	SN	2	P		70	1.3	F
PALE	05	0055	0056	0058	S11	W76	.971		30.3	3	SF	3	C				D
PALE	05	0115	0117	0120	S12	W77	.975		30.3	5	SF	3	C				
PALE	05	0206	0206	0212	N12	W44	.711		1.8	6	SF	3	C		27		
PALE	05	0220	0220	0225	N12	W44	.711		1.8	5	SF	3	C		24		
PALE	05	0300E	0300U	0320D	N11	W43	.697		1.9	20D	SF	3	C		23		D
ATHN	05	0608E	0609U	0631	S11	W71	.947		30.9	23D	SB	3	C		32		D
ATHN	05	0645	0647	0656	S09	W70	.941		31.0	11	SB	3	C		80		
ATHN	05	1058	1100	1126D	S16	E45	.733		8.8	28D	SB	3	C		48		D
HOLL	05	1413	1428	1437	S13	E41	.677		8.7	24	SF	3	C		35		
HOLL	05	1454	1455	1505	S13	E41	.677		8.7	11	SF	3	C		25		
HOLL	05	1907	1909	1918	S12	E38	.636		8.6	11	SF	3	C		25		
PALE	05	2001	2003	2007	S10	W79	.982		30.9	6	SF	3	C				
PALE	05	2030E	2030	2040	S10	W79	.982		30.9	10D	SF	3	C				
HOLL	05	2341	2344	2347D	S13	E35	.601		8.6	6D	1N	3	C		220		
HOLL	06	0050	0112	0115	S13	E35	.602		8.7	25	SF	3	C		23		
RAMY	06	1110E	1110U	1139	S13	E31	.549		8.8	29D	SF	3	C		40		
RAMY	06	1131	1131	1148	N11	W64	.903		1.7	17	SN	3	C		27		
RAMY	06	1143	1143	1146	S12	E33	.571		9.0	3	SB	3	C		53		
RAMY	06	1151	1159	1212	N12	W65	.911		1.6	21	SF	3	C		73		
RAMY	06	1152	1152	1158	S15	E29	.534		8.7	6	SF	3	C		20		
RAMY	06	1250	1252	1258	S13	W26	.482		4.6	8	SF	3	C		26		
BIGB	06	1410E	1410U	1436	S13	E29	.523		8.8	26D	SN	2	C	1410	80	.9	
BIGB	06	1412	1414	1428	N13	W65	.911		1.7	16	SN	3	C	1414	80		
HOLL	06	1420	1425	1452	S13	W27	.496		4.6	32	SF	3	C		27		
BIGB	06	1447	1458	1529	S07	W90	1.000		30.9	42	1N	3	C	1458	70		
HOLL	06	1456	1513	1516	S13	W28	.509		4.5	20	SF	3	C		21		
HOLL	06	1547	1553	1611	N10	W65	.909		1.8	24	SN	3	C		61		
BIGB	06	1550	1553	1611	N11	W65	.910		1.8	21	SB	2	C	1553	40		
BIGB	06	1720	1722	1741	N13	W67	.925		1.7	21	SB	3	C	1722	60		
BIGB	06	1856	1859	1905	S12	W90	1.000		31.0	9	SB	3	C	1859	50		
HOLL	06	1904	1907	1947	S12	E26	.476		8.7	43	SN	3	C		71		
HOLL	06	2021	2024	2032	S11	E25	.456		8.7	11	SF	3	C		27		
HOLL	06	2035	2110	2208	S14	W30	.542		4.6	93	SN	3	C		74		
HOLL	06	2044	2050	2057	N11	W68	.930		1.8	13	SN	3	C		21		
PALE	06	2109	2110	2122	S14	W29	.528		4.7	13	SF	3	C		33		
HOLL	06	2114	2131	2144	N10	W70	.942		1.6	30	SB	3	C		87		
BIGB	06	2124	2133	2147	N13	W67	.925		1.9	23	SB	3	C	2133	60		
HOLL	06	2341	2344	0046	S13	E35	.602		9.6	65	1N	3	C		220		
PALE	07	0045	0049U	0059D	N08	W83	.993		31.8	14D	SF	3	C				
HOLL	07	0046	0048	0054	N10	W70	.942		1.8	8	SN	2	C		17		

Hα SOLAR FLARES

JUNE 1980

OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMP. DAY	MIN.		CONF.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
HOLL	07	0050	0051	0056	S13	E23	.442		8.8	8	SN	2	C		40		
MANI	07	0116	0118	0123	N12	W72	.953		1.7	13	1B	2	P		110	2.5	
BIGB	07	0117	0118	0130	N13	W72	.954		1.7	13	1B	3	C	0118	90		
MANI	07	0319E	0319U	0322D	N12	W74	.963		1.6	3D	SN	2	P		50	1.2	
MITK	07	0512	0522	0535	S13	W37	.628		4.4	23	1N		C	0522	200	2.6	E
MANI	07	0725	0725	0735D	N13	W76	.972		1.6	10D	SN	2	P		50	1.2	
RAMY	07	1107	1225	1323	N12	W75	.967		1.8	136	SN	3	C				
HOLL	07	1320E	1321U	1400	S12	W25	.463		5.7	40D	SF	2	C		135		
RAMY	07	1325	1328	1519	S11	W23	.429		5.8	114	SF	3	C		111		
HOLL	07	1628	1628	1637	N12	W80	.985		1.7	9	SN	3	C				
HOLL	07	1755	1811	1833	N11	W79	.982		1.8	38	SN	3	C				
HOLL	07	1813	1820	1854	N19	E19	.448		9.2	41	SF	3	C		36		
BIGB	07	1840	1844	1854	N16	E90	1.000		14.5	14	SB	1	C	1844	30		
PALE	07	1843	1923	1938	N10	W84	.995		1.5	55	SF	3	C		37		
HOLL	07	1953	1954	2001	N10	W78	.979		2.0	8	SF	3	C				
PALE	07	2005	2039	2104	N10	W84	.995		1.5	59	SF	3	C		10		
BIGB	07	2103	2131	2207	N15	E90	1.000		14.6	64	1B	1	C	2131	70		
BIGB	07	2257	2301	2333	N13	W85	.996		1.6	36	1B	3	C	2301	50		A
PALE	07	2305	2322	2324	N10	W89	1.000		1.3	19	SF	3	C				
BIGB	08	0032	0047	0047D	N16	E90	1.000		14.8	15D	1N	2	P	0047	120		
BIGB	08	1519	1523	1636	N12	W90	1.000		1.9	47	1N	1	C	1523	80		
HOLL	08	1655E	1701	1758	S17	E04	.302		9.0	63D	2B	3	C		531		
HOLL	08	1655	1659	1659D	S15	W00	.261		8.7	4D	1B	3	C		347		
PALE	08	1655	1659	1740	S17	E04	.302		9.0	45	1B	3	C		232		
BIGB	08	1656	1703	1809	S17	E05	.306		9.1	73	1B	2	C	1703	310	3.2	
HOLL	08	1820	1828	1837D	S15	E01	.262		8.8	17D	SF	3	C		28		
HOLL	08	2230	2236	2306	N14	E34	.593		11.5	36	SF	3	C		20		
HOLL	09	0011	0011	0016	S15	W04	.272		8.7	5	SF	2	C		43		
HOLL	09	0020	0023	0035D	S25	E05	.434		9.4	15D	SF	2	C		36		
PALE	09	0316	0317	0324	S25	E04	.432		9.4	8	SF	3	C		39		
HOLL	09	1620	1626	1710	S19	W10	.369		8.9	50	SF	2	C		27		
BIGB	09	1939	1941	1951	S21	W90	1.000		3.1	12	SB	3	C	1941	40		
BIGB	09	2033	2038	2051	S11	E90	1.000		16.6	18	SB	3	C	2038	30		
PALE	10	0229E	0231U	0243	N21	W07	.370		9.6	14D	SF	3	C		27		D
PALE	10	0246	0247	0254	N19	E64	.909		14.9	8	SF	3	C		44		D
PALE	10	0302	0306	0339D	S10	E75	.967		15.8	37D	SF	3	C				D
RAMY	10	1405	1408	1428	N25	W10	.445		9.8	23	SN	3	C		86		
RAMY	10	1407	1412	1433	S20	W23	.506		8.9	26	SN	3	C		70		
BIGB	10	1411	1417	1438	S20	W23	.506		8.9	27	SN	2	C	1417	60	.7	
HOLL	10	1950	1950	2011	S12	E68	.931		15.9	21	SF	3	C		40		
PALE	10	1954	1957	2002	S11	E69	.937		16.0	8	SF	3	C		19		D
BIGB	10	2223	2226	2334	N17	E56	.844		15.1	41	SB	3	C	2226	50	.9	
PALE	10	2229E	2238	2248	N19	E55	.839		15.1	19D	SF	3	C		24		D
PALE	10	2332	2354	0030	S15	W32	.576		8.6	58	SF	3	C		76		
BIGB	10	2342	2345	0044	S15	W31	.563		8.7	62	SN	3	C	2345	80	1.0	
PALE	10	2343	2346	2352	N21	E54	.834		15.0	9	SF	3	C		19		
MANI	10	2352E	2352U	0010D	S11	W34	.583		8.4	18D	SF	1	V		30	.4	
HOLL	11	0007E	0008U	0055	S15	W33	.590		8.5	48D	SN	3	C		159		
HOLL	11	0017	0028	0032	N20	E50	.795		14.8	15	SF	3	C		21		
HOLL	11	2125	2127	2159	S11	E53	.808		15.9	34	SF	3	C		62		
HOLL	12	0032	0034	0042	N21	W33	.617		9.5	10	SN	3	C		28		
BIGB	12	0037	0038	0102	S14	W45	.730		8.7	25	SB	2	C	0038	50	.7	
HOLL	12	0037	0038	0055	S18	W45	.743		8.7	18	SB	3	C		71		
PALE	12	0038	0040	0050	S18	W45	.743		8.7	12	SF	3	C		86		
HOLL	12	0043	0044	0114	N12	E35	.595		14.7	31	SN	3	C		40		
BIGB	12	0129	0130	0144	N13	E37	.625		14.8	15	SB	2	C	0130	40	.5	
PALE	12	0131	0131	0142	N14	E35	.603		14.7	11	SF	3	C		47		
PALE	12	0302	0302	0307	N12	E34	.582		14.7	5	SF	3	C		22		
ATHN	12	0600E	0601U	0621D	S16	E43	.714		15.5	21D	SB	3	C		64		
WEND	12	1032E		1034D	S19	W50	.797		8.7	2D	1F		P	1032	180	3.1	
RAMY	12	1032	1109	1126	N18	E31	.574		14.8	54	SF	3	C		27		
RAMY	12	1249	1251	1305	N13	W15	.331		11.4	16	SN	3	C		55		
WEND	12	1250	1252	1257	N14	W11	.296		11.7	7	SF		C	1252	106	1.1	
WEND	12	1259		1339D	N15	E84	.995		18.8	100	SN		C	1303	47		
HOLL	12	1337	1339	1412	S23	E40	.713		15.6	35	SF	3	C		17		
HOLL	12	1340	1341	1348	S11	E41	.674		15.6	8	SN	3	C		45		
RAMY	12	1341	1342	1351	S11	E34	.584		15.1	9	SB	3	C		44		

Hα SOLAR FLARES

JUNE 1980

OBSERV-ATORY	OBSERVED UT				LOCATION				CMP. DAY	DURATION MIN.	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION				COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
WEND	12	1342	1342	1347	S13	E34	.593		15.1	5	SN		C	1342	80	1.0	D
HOLL	12	1345	1349	1405	N12	E28	.500		14.7	20	SF	3	C		25		
HOLL	12	1345	1347	1415	S29	W38	.730		9.7	30	SF	3	C		28		
HOLL	12	1346	1350	1429	N12	W18	.361		11.2	43	SN	3	C		74		
WEND	12	1347	1351	1403	N13	W12	.295		11.7	16	SN		C	1351	88	1.0	
RAMY	12	1347	1351	1401	N12	W14	.308		11.5	14	SF	3	C		46		
HOLL	12	1402	1403	1414	N19	W40	.686		9.6	12	SN	3	C		58		
WEND	12	1403	1403	1412	N23	W35	.652		10.0	9	SN		C	1403	94	1.3	
RAMY	12	1403	1404	1410	N22	W37	.667		9.8	7	SF	3	C		31		
HOLL	12	1436	1437	1447	N12	W18	.361		11.3	11	SF	3	C		21		
BIGB	12	1454	1501	1606	N13	E28	.506		14.7	72	SN	3	C	1501	70	.8	
HOLL	12	1454	1501	1609	N12	E28	.500		14.7	75	SN	3	C		90		
WEND	12	1455	1459	1524	N11	E28	.495		14.7	29	1F		C	1459	206	2.4	
RAMY	12	1455	1501	1527	N13	E27	.492		14.6	32	SN	3	C		42		
HOLL	12	1509	1510	1521	N19	W41	.697		9.6	12	SF	3	C		28		
BIGB	12	1517	1519	1527	S11	E34	.584		15.2	10	SB	3	C	1519	110	1.4	
WEND	12	1517	1519	1524	S13	E33	.580		15.1	7	1N		C	1519	188	2.4	
HOLL	12	1517	1518	1526	S11	E40	.662		15.6	9	SB	3	C		144		
RAMY	12	1518	1519	1527	S11	E33	.571		15.1	9	SB	3	C		148		
HOLL	12	1640	1642	1727	N12	E27	.486		14.7	47	SN	3	C		51		
RAMY	12	1641	1641	1703	N13	E25	.465		14.6	22	SN	3	C		32		
HOLL	12	1728	1728	1734	N12	E26	.472		14.7	6	SF	3	C		27		
HOLL	12	1808	1810	1835	N11	W19	.367		11.3	27	SN	3	C		51		
HOLL	12	1929	2004	2022	N12	W18	.361		11.5	53	SN	3	C		57		
HOLL	12	2049	2054	2111	N18	E24	.489		14.7	22	SN	3	C		60		
HOLL	12	2131	2131	2139	N18	E24	.489		14.7	8	SF	3	C		25		
BIGB	12	2206	2207	2235	N12	E24	.444		14.7	29	SN	3	C	2207	60	.7	
HOLL	12	2206	2207	2220	N12	E22	.416		14.6	14	SB	3	C		96		
PALE	12	2207	2208	2223	N12	E24	.444		14.7	16	SN	3	C		117		
HOLL	12	2237	2240	2252	S11	E29	.516		15.1	15	SF	3	C		29		
HOLL	12	2326	2328	2343	N18	E22	.465		14.6	17	SN	3	C		64		
PALE	12	2328	2328	2334	N18	E24	.489		14.8	6	SF	3	C		42		D
PALE	13	0120	0123	0133	N18	E21	.452		14.6	13	SF	3	C		21		D
PALE	13	0156	0207	0237	S12	E36	.615		15.8	41	SF	3	C		67		
MANI	13	0300E	0300U	0307D	S15	E26	.502		15.1	7D	SF	1	V		30	.4	
MANI	13	0623E	0626U	0628D	S17	E25	.506		15.1	5D	SN	1	V		25	.3	
BUCA	13	0624		0639	N17	E18	.407		14.6	15	SF		C	0626	161	1.8	
WEND	13	0731E		0737	N18	E20	.441		14.8	6D	SN		C	0731	38	.4	D
WEND	13	0811	0817	0903	S12	E35	.602		16.0	52	2N		C	0817	730	9.4	H
ATHN	13	0811	0815	0827	S14	E33	.586		15.8	16	1B	3	C		270		
MANI	13	0814E	0817U	0828D	S15	E35	.616		16.0	14D	1B	1	V		300	4.0	F
WEND	13	0859	0859	0904	S17	W57	.856		9.1	5	SF		C	0859	44	.9	D
WEND	13	0907	0909	0914	S14	E24	.469		15.2	7	SN		C	0909	34	.4	D
WEND	13	0951		0959D	S09	E85	.996		19.8	8D	SN		C	0953	44		A
WEND	13	1016E		1018D	S17	W58	.864		9.1	2D	SF		P	1016	50	1.0	D
WEND	13	1108E		1112D	N12	W50	.775		9.7	4D	SN		C	1108	34	.6	D
RAMY	13	1247	1253	1303	N12	E16	.333		14.7	16	SN	3	C		44		
WEND	13	1251	1252	1258	N12	E17	.346		14.8	7	SF		C	1252	56	.6	
HOLL	13	1405	1418	1504	N18	E15	.386		14.7	59	SB	3	C		195		
WEND	13	1406	1417	1427	N18	E18	.418		14.9	21	SN		C	1417	162	1.9	
WEND	13	1406	1407	1413	S27	W64	.923		8.8	7	SF		C	1407	69		
BIGB	13	1410	1417	1446	N21	E18	.451		14.9	36	SB	3	C	1417	120	1.3	
RAMY	13	1418	1418	1429	N19	E16	.408		14.8	11	SB	3	C		122		D
WEND	13	1547	1549	1557	S27	W64	.923		8.9	10	SF		C	1549	44		
HOLL	13	1548	1549	1602	N16	E13	.341		14.6	14	SN	3	C		38		
HOLL	13	1648	1705	1714	N16	E12	.330		14.6	26	SN	3	C		56		
BIGB	13	1655	1700	1731	S12	E30	.536		16.0	36	SN	3	C	1700	50	.6	
HOLL	13	1655	1657	1736	S12	E30	.536		16.0	41	SN	3	C		50		
WEND	13	1656	1704	1727	S12	E31	.549		16.0	31	SN		C	1704	141	1.7	
WEND	13	1710	1713	1719	S27	W65	.929		8.8	9	1F		C	1713	81		
PALE	13	1711	1711	1730	S12	E28	.509		15.8	19	SF	3	C		28		
HOLL	13	1730	1731	1806	N19	E14	.388		14.8	36	SN	3	C		33		
HOLL	13	1826	1827	1837	N16	E11	.321		14.6	11	SF	3	C		23		
HOLL	13	1904	1930	1942	N16	E11	.321		14.6	38	SN	3	C		47		
PALE	13	1925	1927	2002	S14	W60	.876		9.3	37	SF	3	C		53		
HOLL	13	1926	1927	1940	S14	W61	.884		9.2	14	SF	3	C		38		
BIGB	13	1926	1931	2009	S11	W59	.864		9.4	43	SN	3	C	1931	70	1.4	
PALE	13	2032	2033	2043D	N17	E11	.334		14.7	110	SF	2	C		35		D
HOLL	13	2131	2136	2148	N17	E10	.325		14.6	17	SF	3	C		53		
HOLL	13	2217	2234	2328	N17	E11	.334		14.8	71	1B	3	C		290		
BIGB	13	2232	2235	0145D	N18	E11	.348		14.8	193D	SB	3	P	2235	150	1.6	

Hα SOLAR FLARES

JUNE 1980

OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM-POR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMP. DAY	MIN.		CONF.	TYPE	TIME UT	MEAS. AREA Mil. of Disk	CORR. AREA Sq. Deg.	
HOLL	13	2233	2234	2236D	N12	E10	.259		14.7	3D	SB	3	C		82		
MITK	13	2240E		2328D	N17	E11	.334		14.8	48D	1N		C	2240	330	3.6	T
HOLL	14	0112	0123	0159D	N16	E07	.286		14.6	47D	SB	2	C		203		
MANI	14	0115E	0122U	0133D	N19	E09	.345		14.7	18D	1N	1	V		200	2.2	
MITK	14	0133E		0139D	N17	E09	.316		14.7	6D	SN		P	0133			ET
MITK	14	0406E		0423D	N17	E08	.308		14.8	23D	1N		C	0406	210	2.3	ET
MANI	14	0549E	0550U	0554D	N28	E12	.382		15.1	5D	SN	1	V		40	.4	F
WEND	14	0558E	0633	0700	N16	E07	.286		14.8	62D	1B		C	0633	263	2.8	
MITK	14	0633E		0653D	N17	E07	.301		14.8	20D	1N		C	0633	370	4.0	T
WEND	14	0651	0653	0706	N12	W59	.862		9.9	17	SF		C	0653	38	.8	
ISTA	14	0741		0747	N16	E10	.310		15.1	6	SF						E
WEND	14	1240	1242	1248	N12	W62	.887		9.9	8	SF		C	1242	62	1.4	
WEND	14	1345	1349	1404	N12	W62	.887		9.9	19	SN		C	1349	88	2.0	
RAMY	14	1346	1350	1427	N11	W63	.894		9.8	41	SB	3	C		92		
BIGB	14	1417	1419	1434	N11	W65	.909		9.7	17	SB	3	C	1419	60		
WEND	14	1418	1420	1426	N12	W62	.887		9.9	8	SF		C	1420	70	1.6	
BIGB	14	1448	1450	1509	S10	E90	1.000		21.4	21	1B	3	C	1450	110		
HOLL	14	1624	1627	1636	S27	W71	.959		9.4	12	SN	3	C				
BIGB	14	1658	1700	1724	S10	E57	.846		19.0	26	SB	3	C	1700	110	2.0	
WEND	14	1658	1701	1716D	S11	E60	.873		19.2	18D	1B		C	1701	238	5.0	H
RAMY	14	1701E	1702U	1752D	S10	E59	.863		19.1	51D	1B	3	C		283		D
HOLL	14	1704	1707	1747	S10	E61	.880		19.3	43	2B	3	C		332		
HOLL	14	1718	1718	1726	N11	W42	.681		11.6	8	SF	3	C		19		
BIGB	14	1822	1824	1846	S15	E09	.312		15.4	24	SB	3	C	1824	70	.7	
HOLL	14	1823	1825	1842	S16	E10	.335		15.5	19	SB	3	C		110		
HOLL	14	2154	2157	2206	N16	E02	.263		15.1	12	SF	3	C		52		
HOLL	14	2218	2222	2229	N15	E60	.873		19.4	11	SF	3	C		29		
BIGB	14	2254	2303	2314	S11	E90	1.000		21.7	20	1B	3	C	2303	140		
BIGB	14	2328	2331	2352	S24	W85	.997		8.6	24	1B	3	C	2331	70		A
HOLL	14	2334E	2345	0028	S26	W75	.974		9.4	54D	SN	2	C				
HOLL	15	0034	0041	0102	S25	W72	.962		9.6	28	SF	2	C				
ISTA	15	0810		0838	S09	E90	1.000		22.1	28	SF						D
HOLL	15	1845	1846	1857	S09	E82	.991		21.9	12	SN	3	C				
HOLL	15	2029	2036	2045	S10	E79	.983		21.8	16	SN	3	C		41		
PALE	15	2030	2037	2041	S09	E77	.976		21.6	11	SF	3	C		29		
RAMY	15	2048	2050	2055	S10	E43	.697		19.1	7	SF	3	C		20		
BIGB	15	2213	2218	2307	S24	W90	1.000		9.2	54	1B	3	C	2218	90		
WEND	16	0753E		0802D	S12	E75	.968		22.0	9D	1N		C	0755	88		
WEND	16	1019E		1027	S12	E74	.964		22.0	8D	1N		C	1020	78		
ATHN	16	1023E	1025U	1035	S13	E74	.964		22.0	12D	SB	3	C		64		
PALE	16	1949E	1953U	2010	S11	E34	.587		19.4	21D	SF	3	C		66		
RAMY	16	2110	2111	2115	S14	E64	.907		21.7	5	SF	3	C		14		
PALE	16	2310	2314	2322	S09	E67	.924		22.0	12	1N	3	C		104		D
HOLL	16	2311	2314	2322	S11	E69	.937		22.1	11	SN	3	C		76		
MANI	16	2315E	2315U	2322D	S10	E68	.931		22.1	7D	SN	1	V		80	1.7	
HOLL	16	2333	2337	2339	S11	E68	.931		22.1	6	SF	3	C		14		
PALE	16	2334	2335	2337	S11	E68	.931		22.1	3	SF	3	C		16		
HOLL	16	2347	2355	0000	S11	E68	.931		22.1	13	SF	3	C		38		
PALE	17	0007	0008	0014	S11	E68	.932		22.1	6D	SF	3	C		26		
MANI	17	0812E	0812U	0825D	S11	E70	.943		22.3	13D	SN	1	V		30	.7	
MANI	17	0729E	0729U	0738D	N15	E25	.474		19.2	9D	SF	1	V		20	.2	
RAMY	17	1159	1228	1311	S18	E64	.912		22.3	72	SF	3	C		55		
RAMY	17	1259	1259	1318	S07	E54	.814		21.6	19	SF	3	C		16		
RAMY	17	1318	1320	1329	S13	W22	.439		15.9	11	SF	3	C		34		
RAMY	17	1411	1415	1424	S08	E54	.815		21.6	13	SF	3	C		14		
BIGB	17	1510	1511	1534	S11	W29	.520		15.5	24	SN	3	C	1511	60	.7	
RAMY	17	1510	1511	1527	S12	W28	.512		15.5	17	SN	3	C		35		
RAMY	17	1641	1641	1652	N10	W42	.678		14.5	11	SF	3	C		43		
BIGB	18	1853	1857	1924	S09	E35	.593		21.4	31	SB	3	C	1857	130	1.6	
BIGB	18	1942	1946	1958	N11	E90	1.000		25.6	16	1N	3	C	1946	90		
HOLL	18	2227	2231	2236	S19	E51	.809		22.8	9	SN	3	C		39		
MITK	18	2332	2336	2354	S11	W42	.689		15.8	22	SN		C	2336			EH
BIGB	18	2332	2335	0020	S11	W41	.677		15.9	48	SN	3	C	2335	130	1.4	
PALE	18	2334E	2334U	0001	S13	W50	.784		15.2	27D	SF	2	C		46		
PALE	18	2337E	2337U	2357	S27	E63	.919		23.7	20D	SF	2	C		39		
HOLL	19	0040	0042	0045D	S30	E59	.901		23.5	5D	SN	3	C		41		

Hα SOLAR FLARES

JUNE 1980

OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM POR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mil. of Disk	CORR. AREA Sq. Deg.	
ISTA	19	0620	0623	0628	N18	W04	.292		19.0	8	SB						D
ISTA	19	0627		0635	S30	E60	.908		23.8	8	SN						D
ISTA	19	0727		0740	S12	E40	.668		22.3	13	SN						E
RAMY	19	1121	1123	1136	S31	E52	.858		23.4	15	SF	3	C		22		
RAMY	19	1328	1349	1523D	S11	E32	.562		22.0	115D	SF	3	C		48		
RAMY	19	1355	1356	1400	S12	W57	.850		15.3	5	SF	3	C		31		
BIGB	19	1832	1839	1905	S28	E41	.756		22.8	33	1B	3	C	1839	190	2.6	
PALE	19	1832	1838	1901	S27	E43	.769		23.0	29	1B	3	C		144		D
HOLL	19	1836E	1842	1902	S27	E41	.751		22.9	26D	1B	3	C		177		
BIGB	19	1859	1902	1909	S11	E90	1.000		26.5	10	1B	3	C	1902	60		
BIGB	19	1948	1957	2141	S26	E55	.864		24.0	113	2B	3	C	1957	360	6.5	
HOLL	19	1949E	1957	1959D	S23	E53	.839		23.8	10D	3B	3	C		987		
HOLL	19	2334	2338	2352	N21	W07	.353		19.5	18	SF	3	C		28		
RAMY	20	1200	1206	1227	S28	E32	.678		22.9	27	1B	3	C		177		
RAMY	20	1508	1510	1515	N16	W24	.465		18.8	7	SN	3	C		22		
HOLL	20	1536	1538	1547	N22	W14	.415		19.6	11	SF	3	C		52		
BIGB	20	1543	1552	1632	S30	E35	.719		23.3	49	SB	3	C	1552	110	1.4	
RAMY	20	1543	1543	1720D	S30	E33	.702		23.1	97D	SN	3	C		30		
PALE	20	2010	2011	2015	S28	E31	.669		23.2	5	SF	3	C		22		D
PALE	21	0003	0059	0248D	S12	E17	.371		22.3	165D	2N	3	C		822		
PALE	21	0034	0055	0213D	S10	E11	.276		21.8	99D	SN	3	C		164		
MANI	21	0043E	0055U	0059D	S12	E14	.334		22.1	16D	1N	1	V		300	3.3	F
PALE	21	0121	0121	0133	N17	W91	1.000		14.2	12	1B	3	C				
RAMY	21	1547	1547	1550	N23	W26	.545		19.7	3	SN	3	C		28		
RAMY	21	1628	1629	1634	S29	E25	.628		23.6	6	SF	3	C		31		
HOLL	21	1639	1642	1650	N22	W28	.559		19.6	11	SF	3	C		33		
RAMY	21	1738	1744	1758	S30	E19	.595		23.2	20	SF	3	C		123		
HOLL	21	1739	1745	1756	S28	E21	.587		23.3	17	SN	3	C		145		
RAMY	21	1853	1855	1906	S22	E28	.590		23.9	13	SF	3	C		41		
HOLL	21	2106	2107	2154	S10	E63	.897		26.6	48	SN	3	C		45		
BIGB	21	2227	2230	2240	S10	W90	1.000		15.2	13	1N	3	C	2230	80		
BIGB	22	0109	0116	0143D	S28	E27	.636		24.1	34D	SN	3	P	0116	50	.6	
PALE	22	0123E	0124	0226	S28	E22	.596		23.7	63D	SF	3	C		70		
PALE	22	0136	0139	0155	S22	E26	.571		24.0	19	SF	3	C		23		
PALE	22	0225E	0240U	0256	N18	W35	.615		19.5	31D	SF	3	C		42		
RAMY	22	1304	1313	1352	S09	W12	.278		21.6	48	2B	3	C		510		D
RAMY	22	1304	1310	1355	S28	E18	.566		23.9	51	SF	3	C		31		
RAMY	22	1305	1317	1339	S23	E17	.498		23.8	34	SN	3	C		33		
HOLL	22	1308	1314	1348	S09	W15	.317		21.4	40	SB	3	C		189		
HOLL	22	1308	1316	1420	S25	E18	.530		23.9	72	SN	3	C		122		
RAMY	22	1317	1321	1404	N19	W41	.690		19.5	47	SB	3	C		170		D
HOLL	22	1318	1328	1412	N19	W42	.702		19.4	54	1B	3	C		212		D
RAMY	22	1335	1335	1355	S29	E10	.534		23.3	20	SF	3	C		54		
HOLL	22	1409	1414	1422	S08	W06	.199		22.1	13	SF	3	C		25		
RAMY	22	1413	1413	1432	S11	W11	.290		21.8	19	SF	3	C		71		
PALE	22	1738	1739	1745	S23	E17	.498		24.0	7	SF	3	C		32		D
HOLL	22	1858	1904	1933	N21	W41	.699		19.7	35	SB	3	C		150		
PALE	22	1858	1904	1954	N18	W44	.720		19.5	56	SB	3	C		168		D
BIGB	22	1859	1909	1952	N21	W44	.731		19.5	53	SB	3	C	1909	130	1.9	
RAMY	22	1900	1904	1934	N18	W43	.709		19.6	34	SB	3	C		132		
PALE	22	1904	1910	1925	S20	E07	.389		23.3	21	SF	3	C		34		
PALE	22	2005E	2014	2032	S23	E14	.474		23.9	27D	SF	3	C		70		
RAMY	22	2014	2014	2021	S23	E14	.474		23.9	7	SF	3	C		36		
PALE	22	2154E	2155U	2208	N19	W44	.724		19.6	14D	SN	3	C		75		
BIGB	22	2154	2157	2205	N22	W54	.831		18.9	11	SN	3	C	2157	100	1.8	
BIGB	23	0115	0121	0144D	S10	W16	.341		21.9	29D	SN	3	P	0121	90	1.0	
BIGB	23	0122	0124	0144D	N26	W41	.721		20.0	22D	SN	3	P	0124	130	1.8	
MANI	23	0217E	0218	0230D	N20	W47	.758		19.6	13D	SN	1	V		80	1.2	F
HITK	23	0338E		0341D	S23	E07	.436		23.7	3D	SN		P	0339			E
BUCA	23	0615		0636	N22	W50	.794		19.5	21	1N		C	0620	161	2.7	
BUCA	23	0620		0700	S14	E46	.746		26.7	40	1N		C	0626	322	5.0	
ATHN	23	0625E	0627	0654D	S12	E49	.773		26.9	29D	SB	3	C		127		
ISTA	23	0705		0720	S03	W90	1.000		16.5	15	SF						E
BUCA	23	0800		0820D	N19	W70	.942		18.1	20D	SN		C	0802	86		
ATHN	23	1017	1018	1028	S10	E44	.712		26.7	11	SB	3	C		64		
RAMY	23	1235	1244	1246D	N20	W52	.808		19.6	11D	SB	3	C		87		D
ATHN	23	1243E	1247	1405	N24	W51	.809		19.7	82D	SB	3	C		111		
BIGB	23	1450	1452	1507	S12	E44	.718		26.9	17	SN	3	C	1452	100	1.4	

Hα SOLAR FLARES

JUNE 1980

OBSERV-ATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMR. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
HOLL	23	1558	1608	1621	S22	E05	.414		24.0	23	SF	3	C		49		
HOLL	23	1623	1638	1702	S22	E05	.414		24.1	39	SF	3	C		36		
BIGB	23	1852	1901	1921	S23	E08	.422		23.8	29	SN	3	C	1901	80	.8	
HOLL	23	1852	1900	1926	S22	E02	.407		23.9	34	SB	3	C		98		
RAMY	23	1857	1902	1914	S23	E02	.423		23.9	17	SN	3	C		43		
PALE	23	1857	1901	1915	S23	E02	.423		23.9	18	SN	3	C		76		D
PALE	23	1933	1935	1949	S29	W03	.516		23.6	16	SF	3	C		59		D
HOLL	23	1934	1934	1946	S28	W03	.501		23.6	12	SN	3	C		39		
HOLL	23	1942	1943	2000	S22	E01	.406		23.9	18	SF	3	C		31		
PALE	23	1953	2000	2009	S29	W04	.518		23.5	16	SF	3	C		77		D
PALE	23	1955	1955	2003	S24	W00	.437		23.8	8	SF	3	C		24		D
HOLL	23	1958	2001	2005	S27	W05	.490		23.5	7	SN	2	C		34		
PALE	23	2007	2020	2031	S13	W23	.458		22.1	24	SF	3	C		41		
PALE	23	2104	2127U	2147	S28	W05	.505		23.5	43	SF	3	C		63		
HOLL	23	2109	2115	2123	S27	W04	.488		23.6	11	SN	2	C		31		
HOLL	23	2121	2127	2214	S22	W03	.406		23.9	53	SN	3	C		150		
BIGB	23	2126	2127	2156D	S24	W02	.439		23.7	32D	SB	3	P	2127	60	.6	
PALE	23	2127	2127	2201	S23	E08	.422		23.9	34	SN	3	C		114		
HOLL	23	2134	2136	2146	S27	W05	.490		23.5	12	SB	3	C		51		
HOLL	23	2253	2314	2316D	S27	W08	.499		23.4	23D	1B	3	C		208		
PALE	23	2253	2314	2336	S29	W07	.525		23.4	43	1B	3	C		217		D
HOLL	23	2258	2259	2314	S22	W03	.409		23.7	16	SN	3	C		25		
BIGB	23	2311	2313	2334	S29	W08	.528		23.4	23	SN	3	C	2313	150	1.6	
PALE	23	2332	2342	0009	N18	W63	.897		19.3	37	1B	3	C		231		D
HOLL	23	2334	2339	2340D	N19	W64	.905		19.2	6D	1B	3	C		251		
PALE	24	0001	0002	0012	S28	W07	.512		23.5	11	SF	3	C		58		
HOLL	24	0002	0003	0015	S26	W06	.480		23.6	13	SN	3	C		46		
HOLL	24	0003	0005	0059	S23	W02	.425		23.9	56	SN	3	C		115		
PALE	24	0141E	0143U	0156	S24	W03	.442		23.8	15D	SF	3	C		55		
PALE	24	0209	0210	0221	S23	W02	.425		23.9	12	SF	3	C		60		
MITK	24	0257	0258	0303	S28	E00	.501		24.1	6	SN		C	0258			
PALE	24	0346E	0348	0354	S29	W10	.537		23.4	8D	SF	3	C		61		
MITK	24	0634	0636	0714	S28	W14	.544		23.2	40	1N		C	0636	260	3.2	E
BUCA	24	0634		0705	S28	W14	.544		23.2	31	1N		C	0638	215	2.6	
WEND	24	0634	0637	0706	S28	W12	.533		23.4	32	1N		C	0637	270	3.2	
ISTA	24	0635		0650	S29	W10	.537		23.5	15	1N						U
WEND	24	1008	1012	1016	S28	W11	.528		23.6	8	SN		C	1012	100	1.2	
WEND	24	1043	1046	1054D	N23	W63	.902		19.7	11D	SN		C	1046	25		
RAMY	24	1216	1218	1222	S13	E23	.459		26.2	6	SN	3	C		28		
RAMY	24	1245	1253	1321	S13	E31	.563		26.9	36	SN	3	C		93		
RAMY	24	1251	1255	1302	N12	E43	.691		27.8	11	SN	3	C		25		
RAMY	24	1251	1258	1333	S21	W08	.412		23.9	42	SN	3	C		54		
RAMY	24	1256	1303	1304D	S29	W17	.575		23.3	8D	1N	3	C		190		
ATHN	24	1302E	1304U	1332	S28	W19	.576		23.1	30D	SB	3	C		95		
RAMY	24	1336	1341	1420	S23	W09	.447		23.9	44	SN	3	C		73		
RAMY	24	1429	1430	1445	S18	E22	.493		26.3	16	SN	3	C		54		
HOLL	24	1522	1524	1603	S27	W17	.550		23.4	41	SB	3	C		165		D
RAMY	24	1522	1523	1617	S29	W15	.562		23.5	55	SB	3	C		153		D
BIGB	24	1522	1525	1621	S29	W15	.562		23.5	59	SB	3	C	1525	140	1.5	
HOLL	24	1548	1548	1604	S22	W10	.438		23.9	16	SF	3	C		20		
RAMY	24	1701	1702	1711	S23	W07	.438		24.2	10	SN	3	C		29		
RAMY	24	1703	1704	1715	S29	W17	.575		23.4	12	SN	3	C		48		
RAMY	24	1824	1824	1829	S10	W45	.724		21.4	5	SF	3	C		20		
PALE	24	1916	1916	1930	S28	W15	.550		23.7	14	SF	3	C		44		D
HOLL	24	1927	1931	1946	S22	W09	.432		24.1	19	SN	3	C		88		
RAMY	24	1928	1929	1938	S10	W45	.724		21.4	10	SF	3	C		46		
RAMY	24	1929	1929	1938	S23	W10	.452		24.1	9	SN	3	C		44		
PALE	24	1930	1931	1937	S23	W09	.447		24.1	7	SF	3	C		48		D
HOLL	24	1955	1958	2025	N21	W72	.954		19.4	30	SN	3	C				
BIGB	24	1957	2002	2048	S24	W15	.498		23.7	51	1B	3	C	2002	260	2.7	
HOLL	24	1957	1959	2044	S23	W14	.478		23.8	47	1B	3	C		208		
PALE	24	2001E	2002U	2032	S21	W11	.430		24.0	31D	1B	3	C		364		D
PALE	24	2001	2001	2021	N20	W72	.953		19.4	20	SF	3	C				
PALE	24	2007	2008	2013	S30	W19	.600		23.4	6	SF	3	C		26		
BIGB	24	2058	2108	2146	S10	W40	.664		21.9	48	SF	3	C	2108	110	1.5	
PALE	24	2108	2111	2119	S12	W39	.659		22.0	11	SF	3	C		18		
BIGB	24	2146	2149	2225	S22	E27	.583		26.9	39	SB	3	C	2149	110	1.3	
PALE	24	2147	2150U	2210D	S18	E30	.584		27.2	23D	SF	3	C		66		
MANI	24	2205E	2205U	2215D	S20	E29	.588		27.1	10D	SF	1	V		30	.4	F
PALE	24	2258	2303	2316	S10	E19	.382		26.4	18	SF	3	C		22		

Hα SOLAR FLARES

JUNE 1980

OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM-POR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mil. of Disk	CORR. AREA Sq. Deg.	
PALE	24	2303	2318U	0016D	S28	W14	.544		23.9	73D	1N	3	C		261		D
HOLL	24	2304	2311	2359	S22	W14	.464		23.9	55	1N	3	C		287		
HOLL	24	2305	2306	2333	S26	W17	.538		23.7	28	SN	3	C		32		
MANI	24	2306E	2306U	2312D	S10	E20	.395		26.5	6D	SF	1	V		15	.2	
MANI	24	2306E	2306U	2335D	S27	W13	.525		24.0	29D	SN	1	V		50	.6	
MANI	24	2306E	2312	2335D	S23	W14	.478		23.9	29D	1N	1	V		250	3.0	F
BIGB	24	2306	2315U	0145D	S25	W15	.511		23.8	159D	1N	3	P	2315	220	2.3	
PALE	24	2306	2317U	2338D	S25	W12	.492		24.1	32D	SF	3	C		76		
HOLL	24	2334	2339	0009	N19	W64	.905		20.2	35	1B	3	C		251		
PALE	25	0006E	0008U	0052D	N21	W71	.948		19.7	46D	SF	3	C		11		D
HOLL	25	0006	0014	0040	N20	W73	.958		19.5	34	SN	3	C				
MITK	25	0047	0052	0110	S23	W12	.466		24.1	23	1B		C	0052	270	3.2	
HOLL	25	0047	0050	0139D	S22	W13	.459		24.1	22D	SB	3	C		177		
PALE	25	0052E	0052U	0113D	S21	W14	.453		24.0	21D	SN	3	C		127		D
MANI	25	0052E	0052U	0105D	S22	W13	.459		24.1	13D	SN	1	V		80	1.0	
PALE	25	0227	0227	0234	S23	W23	.555		23.4	7	SF	3	C		40		D
PALE	25	0305	0306U	0334D	S12	W42	.696		22.0	29D	SF	3	C		43		D
BUCA	25	0650		0705D	N24	W77	.975		19.5	15D	SN		C	0705	43		D
ISTA	25	0655		0715	N22	W75	.967		19.7	20	SN						E
ATHN	25	0657	0659	0730	N24	W74	.964		19.7	33	SB	3	C		32		D
RAMY	25	1216	1218	1222	N19	E62	.890		30.2	6	SF	3	C		14		
RAMY	25	1236	1239	1240	N22	E64	.907		30.3	4	SF	3	C		25		
ATHN	25	1238	1241	1244D	S28	W25	.623		23.7	6D	SB	3	C		48		
RAMY	25	1238	1238	1347	S29	W23	.618		23.8	69	SB	3	C		69		D
HOLL	25	1250	1312	1312D	S31	W25	.654		23.7	22D	SB	3	C		73		
HOLL	25	1322	1326	1345	S24	W23	.565		23.8	23	SN	3	C		101		
RAMY	25	1358	1359	1408	S27	W34	.693		23.0	10	SN	3	C		40		
HOLL	25	1358	1359	1410	S28	W34	.700		23.0	12	SN	3	C		45		
RAMY	25	1423	1424	1435	S11	W52	.802		21.7	12	SF	3	C		17		
HOLL	25	1520	1553	1739	S30	W28	.667		23.5	139	2B	3	C		520		
HOLL	25	1521	1524	1538	S23	W33	.654		23.2	17	SF	3	C		61		
RAMY	25	1550	1554	1713D	S29	W28	.658		23.6	83D	1B	3	C		397		D
BIGB	25	1550	1555	1722	S28	W29	.657		23.5	92	1B	3	C	1555	250	2.9	
HOLL	25	1559	1615	1630	N20	E61	.884		30.2	31	SF	3	C		15		
PALE	25	1704	1725	1735	S28	W35	.709		23.1	31	SN	3	C		86		D
HOLL	25	1721	1723	1738	S23	W22	.546		24.1	17	SN	3	C		42		
PALE	25	1741	1743	1745	S32	W42	.793		22.6	4	SF	3	C		19		
HOLL	25	1847	1849	1903	S24	W26	.593		23.8	22	SN	3	C		43		
HOLL	25	1900	1901	1905	S29	W37	.734		23.0	5	SF	3	C		23		
PALE	25	2009	2011	2015	S29	W30	.674		23.6	6	SF	3	C		31		
HOLL	25	2120	2121	2131	S28	W39	.744		23.0	11	SN	3	C		44		
BIGB	25	2240	2251	2319	N06	E90	1.000		2.7	39	1N	3	C	2251	100		
PALE	25	2303	2318U	0016D	S28	W14	.545		24.9	73D	1N	3	C		261		D
BIGB	25	2346	2351	2359	N21	W90	1.000		19.2	13	1N	3	C	2351	80		
HOLL	26	0120	0120	0127	S25	W32	.660		23.7	7	SB	3	C		61		D
PALE	26	0121E	0121U	0126	S24	W28	.613		24.0	5D	SF	3	C		38		
PALE	26	0225E	0225U	0238	S18	E11	.391		26.9	13D	SF	3	C		98		
RAMY	26	1259	1303	1308	S29	W46	.809		23.1	9	SN	3	C		21		
BIGB	26	1435	1437	1505	N22	W90	1.000		19.9	30	1B	3	C	1437	90		
RAMY	26	1439	1439	1447	N20	W85	.995		20.2	8	SN	3	C				
HOLL	26	1441E	1441U	1453	N19	W90	1.000		19.9	12D	SB	3	C				
HOLL	26	1511	1522	1536	S28	W49	.828		23.0	25	SN	3	C		44		
RAMY	26	1517	1531	1534	S28	W47	.812		23.1	17	SN	3	C		16		
RAMY	26	1615	1616	1624	S18	W05	.356		26.3	9	SF	3	C		44		
HOLL	26	1651	1652	1701	S28	W51	.844		22.9	10	SN	3	C		26		
HOLL	26	1717	1719	1726	N16	W90	1.000		20.0	9	SB	3	C				
RAMY	26	1723E	1723	1726	N13	W87	.998		20.2	3D	SB	3	C				
HOLL	26	1915	1916	1923	S29	W56	.883		22.6	5	SF	3	C		17		
HOLL	26	1942	1946	2007	S30	W40	.766		23.8	25	SB	3	C		66		D
PALE	26	1947E	1947U	2016D	S31	W42	.788		23.7	29D	SN	3	C		60		
HOLL	26	2149	2149	2210	S29	W55	.876		22.8	21	SF	3	C		15		
HOLL	27	0037	0113	0140	S26	W41	.752		24.0	63	SB	3	C		107		
PALE	27	0038E	0041U	0053	S25	W43	.765		23.8	12D	SF	3	C		73		D
PALE	27	0113E	0114U	0138	S29	W53	.863		23.1	25D	2N	3	C		407		D
ATHN	27	1346	1349	1356	S30	W49	.837		23.9	10	SB	3	C		95		D
RAMY	27	1347	1348	1402	S31	W49	.841		23.9	15	SB	3	C		96		
HOLL	27	1347	1349	1423	S30	W51	.852		23.7	36	1B	3	C		128		D
HOLL	27	1353	1358	1418	S23	E43	.755		30.8	25	SN	3	C		114		
RAMY	27	1353	1358	1428	S23	E44	.764		30.9	35	SN	3	C		129		

Hα SOLAR FLARES

JUNE 1980

OBSERVATORY	OBSERVED UT				LOCATION					DURATION — MIN.	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS
					APPROX.												
	DAY	START	MAX. PHASE	END	LAT.	MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMP. DAY			CONF.	TYPE	TIME — UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
HOLL	27	1454	1458	1513	S29	W64	.932		22.8	19	SN	3	C		91		
RAMY	27	1455	1457	1510	S29	W63	.926		22.9	15	SN	3	C		52		
HOLL	27	1545	1545	1553	S31	W54	.876		23.6	8	SF	3	C		13		
RAMY	27	1615	1617	1635D	S27	W67	.944		22.7	20D	SB	3	C		55		D
HOLL	27	1615	1617	1637	S25	W64	.925		22.9	22	SB	3	C		116		
BIGB	27	1616	1620	1645	S24	W68	.946		22.6	29	SB	1	C	1620	70		
RAMY	27	1656E	1657	1706	S25	W53	.850		23.7	10D	SF	3	C		21		
PALE	27	1942	1946U	1956	N11	W58	.849		23.5	14	SF	3	C		17		
RAMY	27	2108	2110	2117	S25	W55	.865		23.8	9	SN	3	C		81		
HOLL	27	2109	2120	2130	S25	W54	.857		23.8	21	SN	3	C		38		
RAMY	27	2115	2118	2127	S28	W74	.975		22.3	12	SN	3	C				
HOLL	27	2317	2326	2336	S30	W62	.923		23.3	19	1N	3	C		117		
BIGB	27	2323	2325	2331	S29	W55	.877		23.8	8	SN	2	C	2325	70	1.3	A
HOLL	27	2340	2347	0012	S28	W54	.867		23.9	32	SN	3	C		124		
MANI	28	0319E	0322U	0337D	S20	E40	.710		1.1	18D	SN	1	V		25	.4	
MITK	28	0321	0327	0408	N19	E32	.579		38.5	47	1N		C	0327	250	3.1	E
ATHN	28	0746	0751	0813	S27	W80	.991		22.3	27	SB	3	C				
ATHN	28	1110	1113	1115D	S23	W86	.999		22.0	5D	1B	3	C				
RAMY	28	1314	1314	1324	S31	W63	.931		23.8	10	SN	3	C		43		
RAMY	28	1421	1422	1426	S28	W83	.996		22.4	5	SN	3	C				
RAMY	28	1712	1713	1719	S21	E31	.621		1.0	7	SF	3	C		35		
RAMY	28	1730	1733	1752	S19	E31	.606		1.1	22	SN	3	C		108		
HOLL	28	2125	2125	2130	S30	W76	.982		23.2	5	SN	3	C		22		
HOLL	28	2222	2225	2230	S30	W77	.985		23.2	8	SN	3	C		50		
HOLL	28	2300	2301	2307	S30	W77	.985		23.2	7	SB	3	C		41		
RAMY	29	1255	1255	1259	S36	W67	.957		24.5	4	SF	3	C				
BIGB	29	1451	1452U	1506	S24	W90	1.000		22.9	15	1N	1	P	1452	50		
BIGB	29	1557	1600	1608	S24	W90	1.000		22.9	11	1N	2	C	1600	50		
HOLL	29	1806	1806	1816	S08	W36	.608		27.1	10	SN	3	C		44		
RAMY	29	1806	1806	1820	S11	W37	.633		27.0	14	SF	3	C		47		
BIGB	29	1822	1824	1907	S25	W90	1.000		23.0	45	2B	1	C	1824	238		
PALE	30	0122E	0245U	0248D	S17	W50	.800		26.3	86D	1F	3	C		214		D
ISTA	30	0615E		0623	S27	W90	1.000		23.5	8D	SF						A
ISTA	30	0728		0730	S09	W45	.724		26.9	10	SF						E
BUCA	30	0725		0740	S10	W43	.703		27.1	15	SF		C	0726	86	1.2	E
ISTA	30	0745		0750	S31	W75	.980		24.7	5	SF						D
RAMY	30	1302	1303	1307	S20	W57	.869		26.3	5	SF	3	C		25		
RAMY	30	1317	1318	1322	S12	W23	.457		28.8	5	SN	3	C		23		
HOLL	30	1319	1320	1322	S10	W17	.361		29.3	3	SF	3	C		42		
RAMY	30	1329	1333	1352	S19	W58	.875		26.2	23	SF	3	C		100		
HOLL	30	1330	1339	1433	S13	W23	.465		28.8	63	1B	3	C		281		
HOLL	30	1331	1333	1339	S18	W52	.822		26.7	8	SF	3	C		42		
RAMY	30	1331	1338	1416	S13	W21	.440		29.0	45	1B	3	C		217		
ATHN	30	1337E	1339	1400D	S11	W22	.436		28.9	23D	SB	3	C		190		
HOLL	30	1455	1457	1501	S10	W18	.374		29.3	6	SF	3	C		25		
HOLL	30	1513	1540	1540D	S13	W23	.465		28.9	27D	SB	3	C		189		
RAMY	30	1521	1532	1551	S12	W22	.444		29.0	30	SB	3	C		179		D
BIGB	30	1522	1527	1559	S11	W23	.449		28.9	37	SN	2	C	1527	80	.9	
WEND	30	1532E		1542D	S10	W22	.428		29.0	10D	1N		C	1532	295	3.3	Z
BIGB	30	1559	1602	1619	N09	E32	.536		3.1	20	SB	1	C	1602	60	.7	
RAMY	30	1600	1602	1608	N10	E31	.524		3.0	8	SN	3	C		39		
BIGB	30	1946	1948	2005	S12	W22	.444		29.2	19	SB	1	C	1948	60	.7	
PALE	30	2235E	2249U	2315D	S14	W23	.474		29.2	40D	SN	3	C		148		D
BIGB	30	2246	2249	2321	S12	W22	.444		29.3	35	SB	1	C	2249	50	.6	

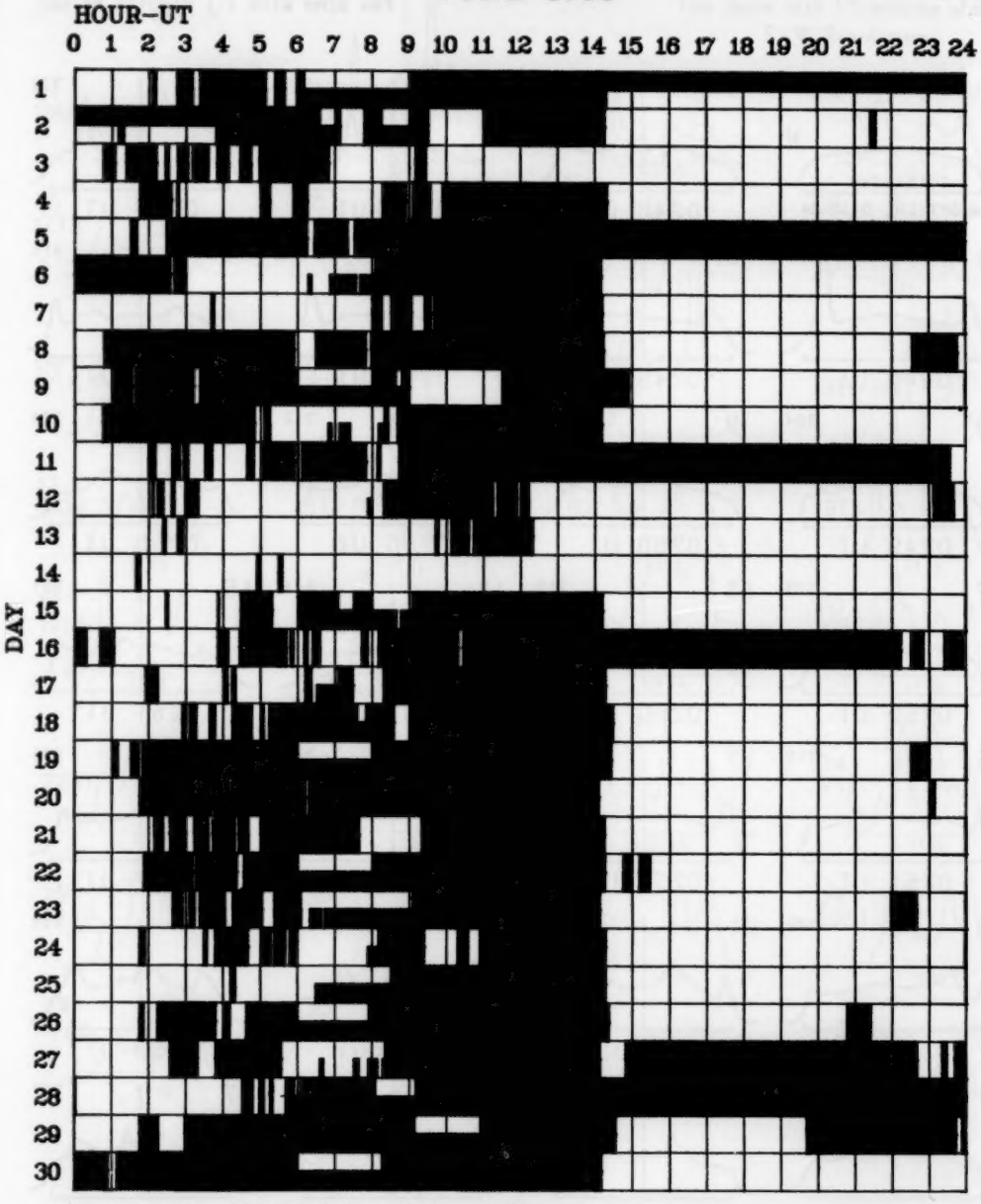
"REMARKS":

A = Eruptive prominence whose base is less than 90 degrees from central meridian.
B = Probably the end of a more important flare.
C = Invisible 10 minutes before.
D = Brilliant point.
E = Two or more brilliant points.
F = Several eruptive centers.
G = No visible spots in the neighborhood.
H = Flare accompanied by high-speed dark filament.
I = Active region very extended.
J = Distinct variations of plage intensity before or after the flare.
K = Several intensity maxima.
L = Existing filaments show signs of sudden activity.
M = White-light flare.
N = Continuous spectrum shows effects of polarization.
O = Observations have been made in the H and K lines of CaII.
P = Flare shows helium D3 in emission.
Q = Flare shows Balmer continuum in emission.
R = Marked asymmetry in H-alpha line suggests ejection of high-velocity material.
S = Brightness follows disappearance of filament in same position.
T = Region active all day.
U = Two bright branches, parallel or converging.
V = Occurrence of an explosive phase: important, expansion within roughly 1 minute that often includes a significant intensity increase.
W = Great increase in area after time of maximum intensity.
X = Unusually wide H-alpha line.
Y = System of loop-type prominences.
Z = Major sunspot umbra covered by flare.

*

INTERVALS OF NO FLARE PATROL OBSERVATION
FOR PRECEDING SOLAR FLARE TABLE

JUNE 1980



Observatories included in total patrol:

Athens	Bucharest	Istanbul	Mitaka	Palehua	Wendelstein
Big Bear	Holloman	Manila	Monte Mario	Ramey	

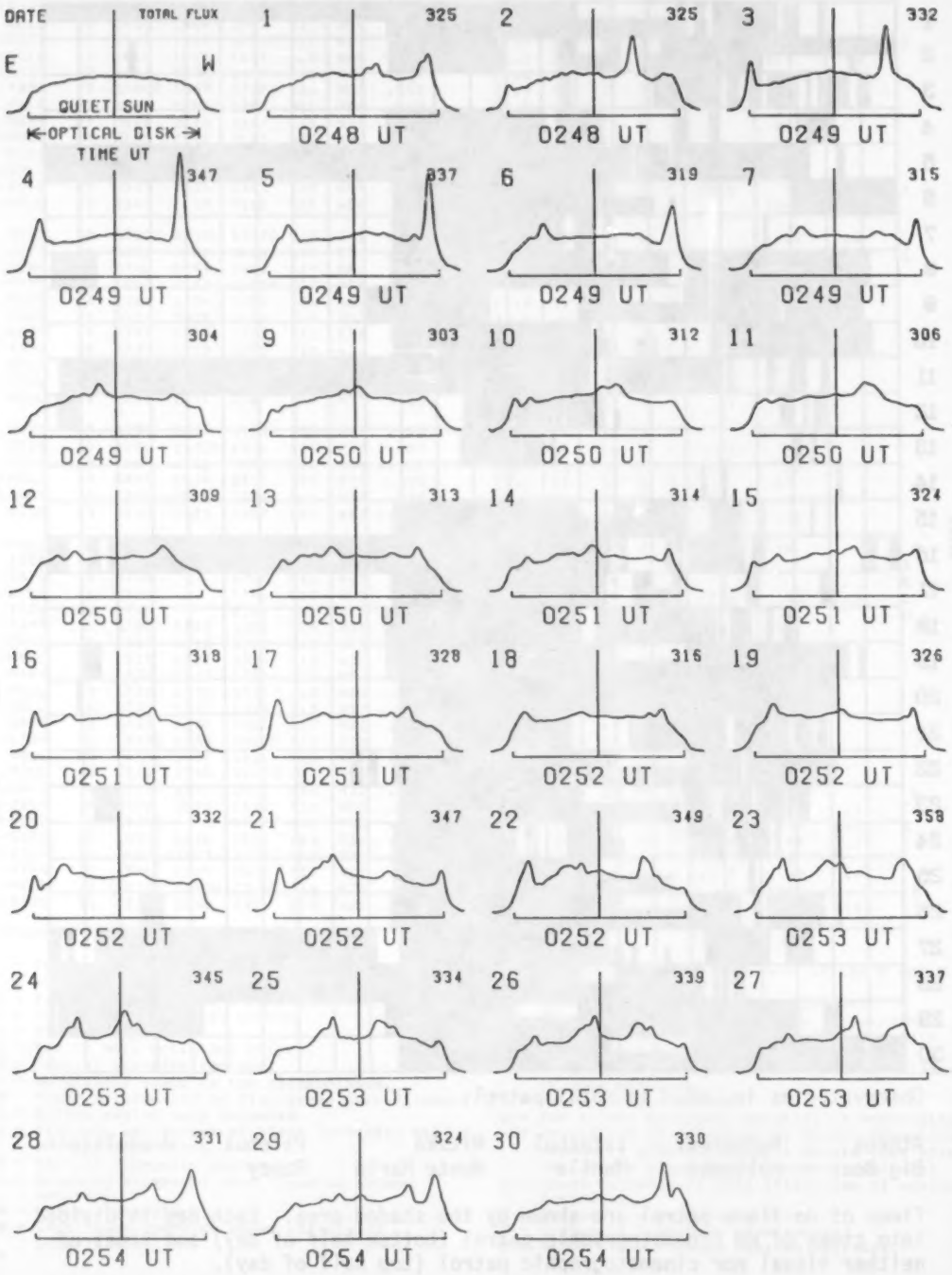
Times of no flare patrol are shown by the shaded area. Each day is divided into times of no cinematographic patrol (bottom half of day) and times of neither visual nor cinematographic patrol (top half of day).

EAST-WEST SOLAR SCANS

JUNE 1980

TOYOKAWA, JAPAN

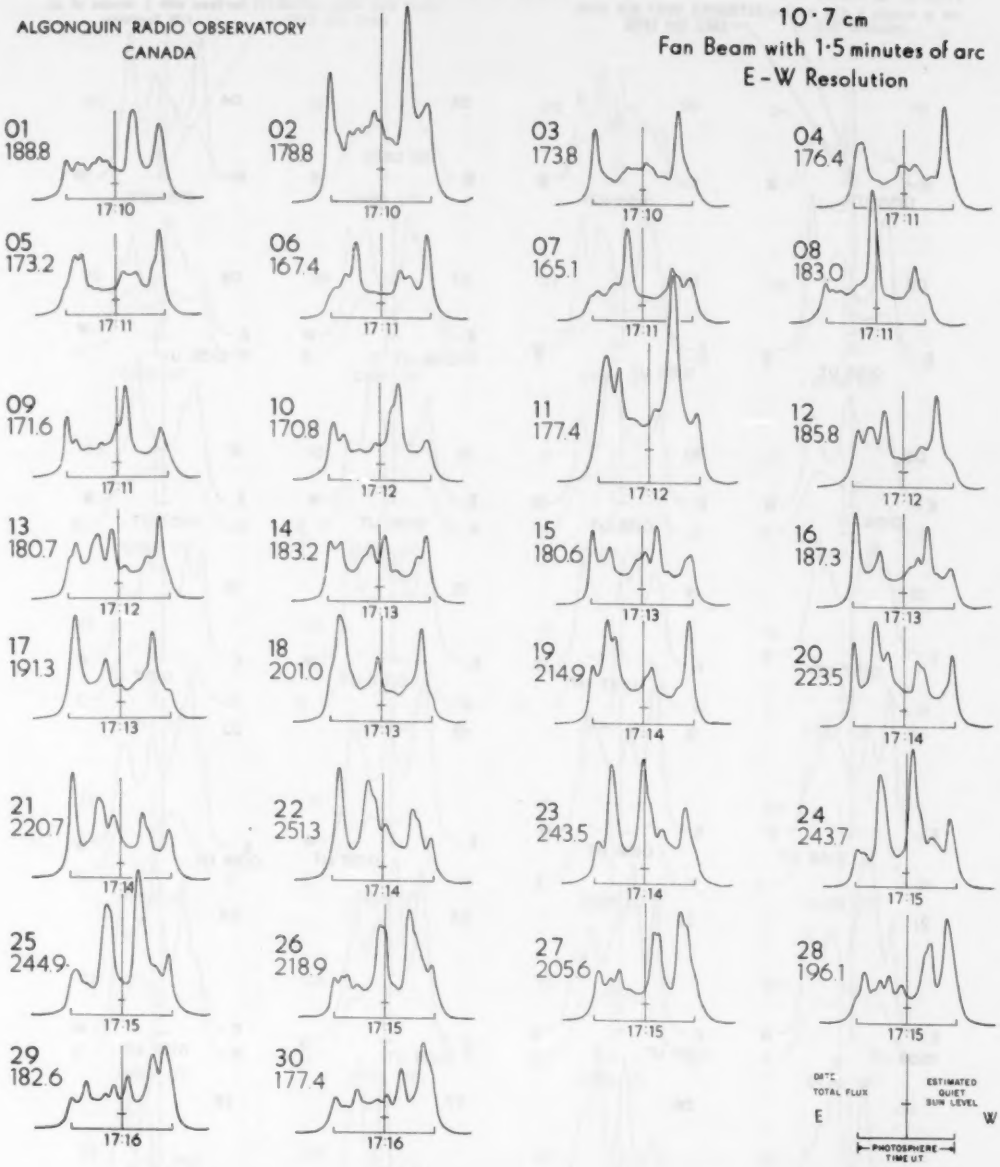
3 CM
FAN BEAM WITH 1.1 MINUTES OF ARC



EAST-WEST SOLAR SCANS
JUNE 1980

ALGONQUIN RADIO OBSERVATORY
CANADA

10·7 cm
Fan Beam with 1·5 minutes of arc
E-W Resolution

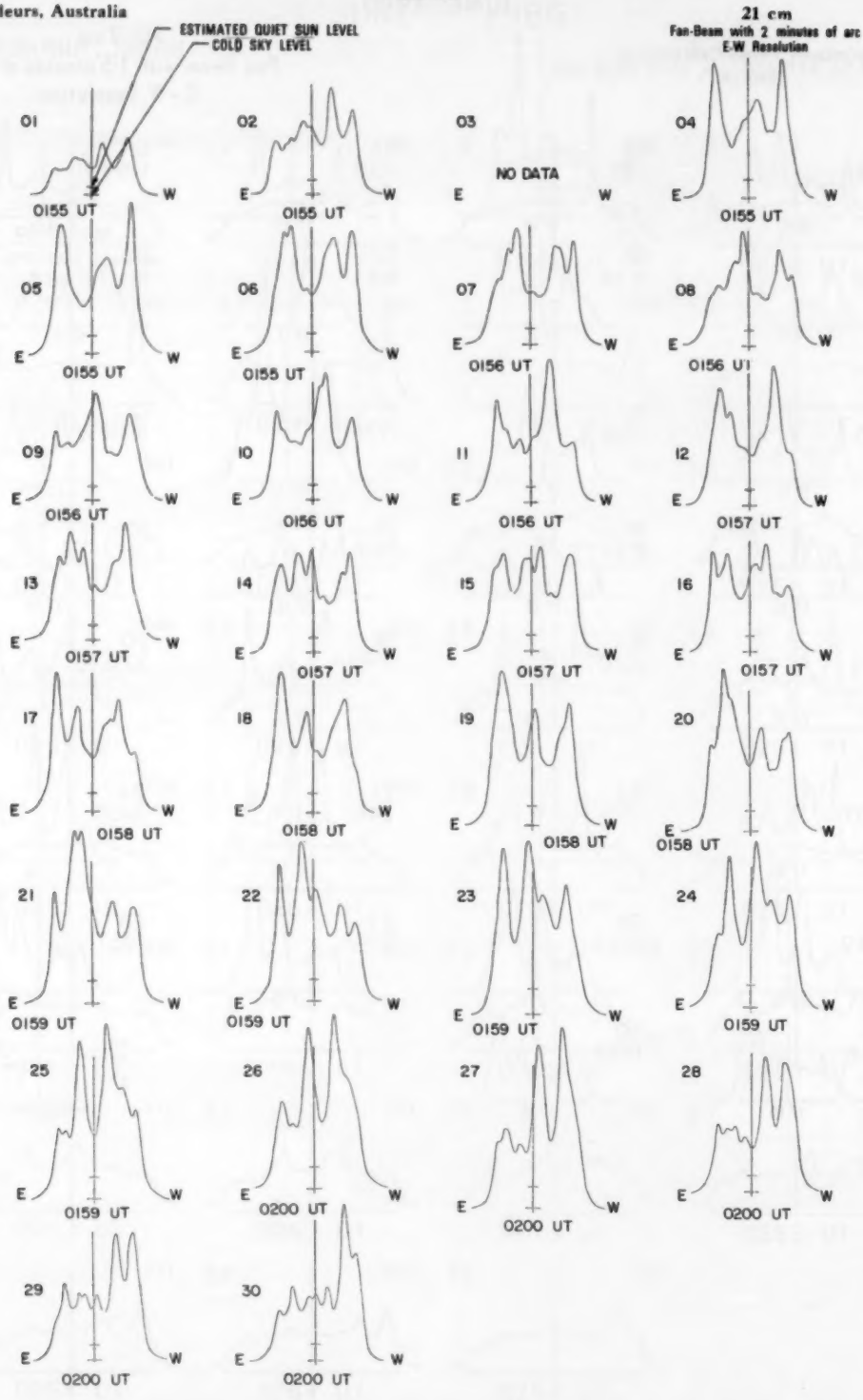


EAST-WEST SOLAR SCANS

JUNE 1980

Fleurs, Australia

21 cm
Fan-Beam with 2 minutes of arc
E-W Resolution

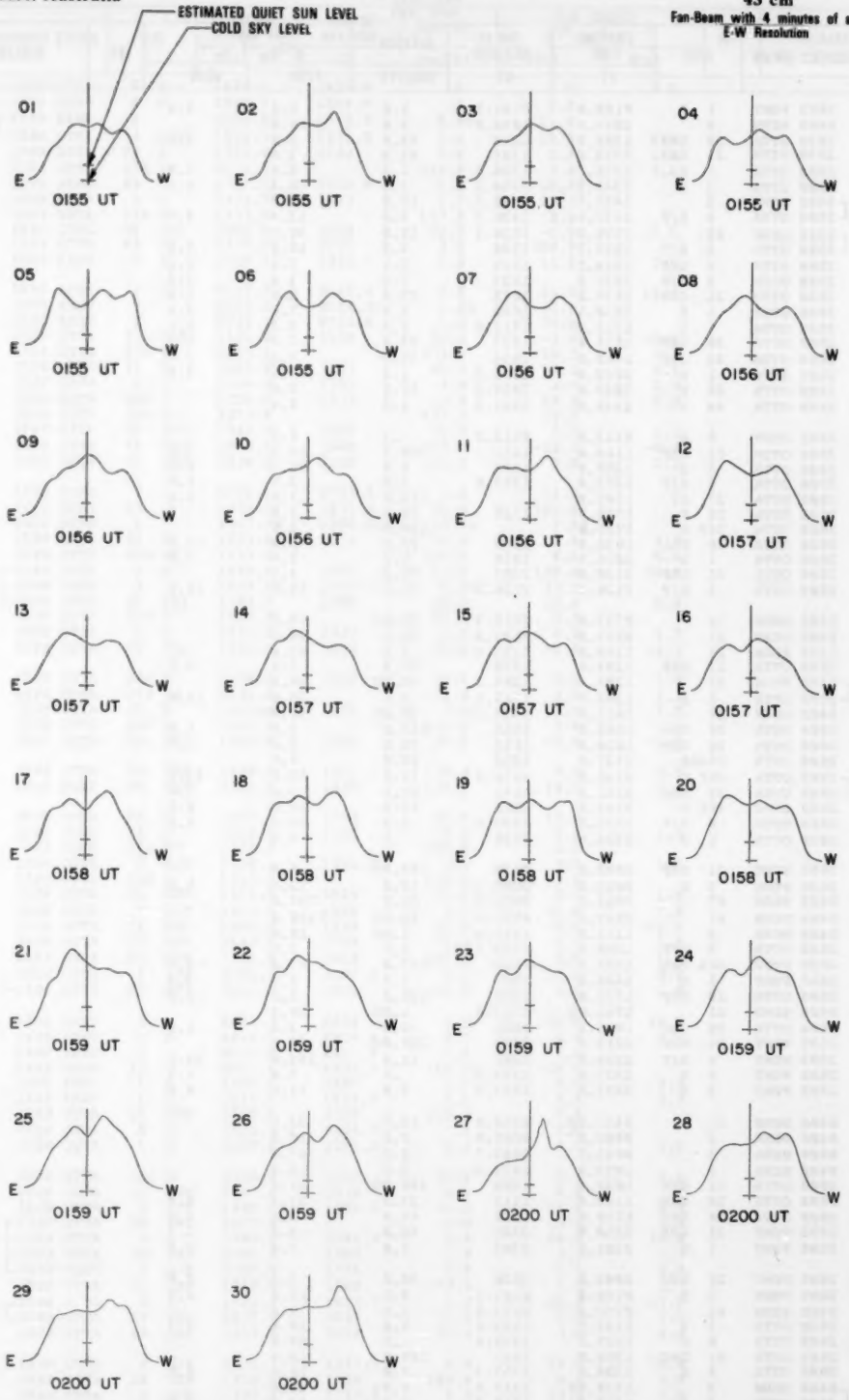


EAST-WEST SOLAR SCANS

JUNE 1980

Fleurs. Australia

43 cm
Fan-Beam with 4 minutes of arc
E-W Resolution



SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

JUNE 1980

DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	REMARKS
				UT	UT	MINUTES	PEAK	MEAN		
01	2695	PENT	1 S	0100.0	0101.5	5.0	6.8	3.4		
	8400	BERN	3	1045.0	1046.0	3.0	15.0			
	2800	OTTA	20 GRF	1200.0	1240	65.0	3.8	2.2		
	2800	OTTA	21 GRF	1334.0	1345	65.0	3.8			
	2800	OTTA	1 S	1336.2	1336.9	1.3	4.6	2.3		
	2800	OTTA	3 S	1349.8	1350.2	3.0	16.4	4.1		
	8400	BERN	3	1424.5	1428.5	16.0	34.0			
	2800	OTTA	4 S/F	1427.0	1428.3	4.0	13.4	4.0		
	8400	BERN	45	1519.0	1520.6	10.0	40.0			
	2800	OTTA	4 S/F	1519.7	1520	3.0	16.0	7.6		
	2800	OTTA	2 S/F	1524.5	1525	2.5	3.0	2.2		
	2800	OTTA	2 S/F	1531.0	1533	3.5	3.8	1.4		
	2800	OTTA	21 GRF	1635.0	1645	75.0	3.8	1.9		
	2800	OTTA	1 S	1650.5	1652	2.0	7.6	3.0		
	2800	OTTA	1 S	1711.0	1711.8	2.0	2.2	1.1		
	2800	OTTA	20 GRF	1815.0	1823	25.0	3.0	1.5		
	2800	OTTA	22 GRF	1910.0	1934	35.0	7.2	2.4		
	2800	OTTA	1 S	2040.0	2040.5	1.8	7.6	3.4		
	2800	OTTA	40 F	2049.0	2058.5	16.0	6.4			
	2800	OTTA	40 F	2238.8	2241.9	4.0	8.4			
02	2695	PENT	8 S	0112.0	0112.2	.3	8.2			
	2800	OTTA	23 GRF	1100.0	1412	300.0	12.2	7.0		
	2800	OTTA	3 S	1258.0	1300	6.0	21.2	8.4		
	2800	OTTA	2 S/F	1353.0	1353.5	3.0	3.8	1.6		
	2800	OTTA	27 RF	1705.0		170.0	3.0	2.6		
	2800	OTTA	24 R	1705.0	1725	20.0	3.0	1.5		
	2800	OTTA	24P R	1725.0		130.0	3.0			
	2800	OTTA	26 FAL	1935.0	1955	20.0	-3.0	-1.8		
	2800	OTTA	1 S	2016.5	2018	6.0	2.6	1.0		
	2800	OTTA	21 GRF	2120.0	2205	95.0	4.2			
	2800	OTTA	4 S/F	2126.0	2136.2	27.0	55.0	18.6		
03	8400	BERN	20	0753.0	0810.3	93.0U	18.0			
	8400	BERN	21	0941.0	0943.0	23.0	20.0			
	8400	BERN	21	1140.0	1142.5	3.0	42.0			
	2800	OTTA	21 GRF	1200.0	1220	55.0	3.8	1.9		
	8400	BERN	21	1204.2	1205.3	60.0U	29.0			
	2800	OTTA	3 S	1204.7	1205.5	2.5	35.0	15.6		
	8400	BERN	21	1411.8	1414.9U	20.0U	11.0U			
	2800	OTTA	20 GRF	1500.0	1555	115.0	3.0	1.8		
	2800	OTTA	20 GRF	1820.0	1850	70.0	3.0	1.5		
	2800	OTTA	24OAR	2127.0	2250	80.0	4.0			
	2800	OTTA	46F C	2128.0	2130.3	13.0	88.8	33.2		
	2800	OTTA	30 PBI	2141.0	2141	65.0	8.4	7.0		
	2800	OTTA	46F C	2145.5	2152	14.0	14.2	4.8		
	2800	OTTA	4 S/F	2222.5	2223.5	2.0	13.6	5.0		
	2800	OTTA	8 S	2224.9	2225	.2	6.2			
04	2695	PENT	21 GRF	0000.0	0120	100.0D	5.0			
	2695	PENT	3 S	0002.0	0005.7	13.0	13.6	5.4		
	8400	BERN	47	0654.1	0654.8	55.0	547.0			
	8400	BERN	47	0807.7	0837.1	80.0D	1190.0			
	8400	BERN	3	1111.0	1111.3	1.0U	19.0			
	2800	OTTA	2 S/F	1348.4	1349.1	1.5	3.8			
	2800	OTTA	26A FAL	1353.0	1650	177.0	-7.0	-4.0		
	2695	PENT	1 S	1406.2	1407	1.5	6.2	3.2		
	2800	OTTA	20 GRF	1735.0	1810	125.0	3.2	2.0		
	8400	BERN	21	1743.0U	1743.4	1.0U	28.0			
	2800	OTTA	20 GRF	1955.0	2005	30.0	3.0	1.5		
	2695	PENT	21 GRF	2213.0	2427	220.0D	20.4			
	2695	PENT	4 S/F	2259.0	2301	11.0	192.0	34.2		
	2695	PENT	8 S	2323.0	2323.2	.5	3.0	1.5		
	2695	PENT	3 S	2431.0	2432.5	3.0	11.6	4.6		
05	8400	BERN	21	0453.0U	0454.0	12.0	32.0			
	8400	BERN	3	0605.0	0605.8	2.0	16.0			
	8400	BERN	3	0645.5	0645.7	3.0	67.0			
	8400	BERN	1	1023.0	1024.2	2.0	12.0			
	2800	OTTA	21 GRF	1040.0	1205	340.0D	21.4			
	2800	OTTA	20 GRF	1102.0	1111	35.0	21.4	8.0		
	2800	OTTA	20 GRF	1750.0	1815	45.0	3.6	1.8		
	2695	PENT	21 GRF	2250.0	2305	40.0	3.0	1.7		
	2695	PENT	1 S	2301.0	2303	4.0	3.8	2.8		
06	2695	PENT	20 GRF	0003.0	0020	90.0	5.2	2.0		
	2695	PENT	3 S	0140.0	0141.5	4.5	15.8	4.0		
	8400	BERN	45	0757.5	0857.5	3.8	19.0			
	2800	OTTA	3 S	1142.5	1142.6	5.0	20.8	5.2		
	2800	OTTA	8 S	1325.5	1325.8	.5	64.0			
	2800	OTTA	21 GRF	1350.0	1421	100.0	13.4			
	2800	OTTA	3 S	1356.0	1357.3	7.0	19.6	6.6		
	8400	BERN	3	1418.0U	1418.8	5.0U	35.0			
	2800	OTTA	3 S	1418.0	1418.8	2.5	13.6	6.8		

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

JUNE 1980

DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	REMARKS
				UT	UT	MINUTES	PEAK	MEAN		
06	2800	OTTA	8 S	1422.1	1422.4	.6	5.0	2.5		
	2800	OTTA	8 S	1550.9	1550.9	.1	5.0			
	8400	BERN	3	1551.0U	1552.3	4.0U	16.0			
	2800	OTTA	4 S/F	1551.9	1552.3	1.0	18.0	6.0		
	2800	OTTA	24 R	1715.0	1723	8.0	3.0	1.5		
	2800	OTTA	27A RF	1715.0		215.0	3.0	2.6		
	8400	BERN	45	1717.7	1718.0	1.5	18.0			
	2800	OTTA	3 S	1721.7	1722	1.0	22.2			
	2800	OTTA	24P R	1723.0		157.0	3.0			
	2800	OTTA	26 FAL	2000.0	2050	50.0	-3.0	-1.5		
	2800	OTTA	40 F	2130.0	2131	3.0	300.0			
	2695	PENT	3 S	2334.5	2334.7	1.0	12.6	3.0		
07	2695	PENT	3 S	0117.0	0118.4	3.0	44.0	19.0		
	8400	BERN	3	0554.0	0554.3U	1.0U	11.0			
	8400	BERN	8	0724.2	0724.6	1.0	70.0			
	2800	OTTA	32 ABS	1105.0	1130	55.0	-3.6	-2.0		
	2800	OTTA	27A RF	1205.0		435.0	10.2	6.0		
	2800	OTTA	24 R	1205.0	1253	48.0	10.2	5.1		
	2800	OTTA	1 S	1220.0	1222	4.0	3.6	2.0		
	2800	OTTA	46F C	1229.0	1234	23.0	19.0	9.0		
	2800	OTTA	24P R	1253.0		117.0	10.2			
	2800	OTTA	20 GRF	1342.0	1345	15.0	2.2	1.1		
	2800	OTTA	26 FAL	1450.0	1920	270.0	-10.2	-4.0		
	2695	PENT	20 GRF	2230.0	2320	150.0	3.8	2.2		
08	8400	BERN	3	0726.6	0727.5	1.0	11.0			
	8400	BERN	45	1030.0	1033.8	30.0	100.0			
	8400	BERN	1	1207.0U	1208.0U	10.0U	7.0U			
	2800	OTTA	24 R	1652.0	1810	78.0	8.6	4.3		
	2800	OTTA	27A RF	1652.0		238.0	8.6	6.0		
	2800	OTTA	4 S/F	1655.0	1659	11.0	120.0	38.0		
	8400	BERN	3	1659.0U	1659.3	8.0U	33.0			
	2800	OTTA	29 PBI	1706.0	1706	44.0	18.6	8.0		
	2800	OTTA	24P R	1810.0		95.0	8.6			
	2800	OTTA	1 S	1943.5	1944	1.5	4.4	1.7		
	2800	OTTA	26 FAL	1945.0	2050	65.0	-8.6	-4.3		
09	2800	OTTA	24O R	1530.0	1610	40.0	3.6	1.8		
	2800	OTTA	27F RF	1620.0		170.0	3.6	3.1		
	2800	OTTA	24 R	1620.0	1625	5.0	3.6	1.8		
	2800	OTTA	24P R	1625.0		125.0	3.6			
	2800	OTTA	26 FAL	1830.0	1910	40.0	-3.6	-1.8		
10	2800	OTTA	22 GRF	1400.0	1411	170.0	7.4	2.4		
	2695	PENT	20 GRF	2320.0	2425	120.0	10.2	5.1		
12	2800	OTTA	40 F	1219.5	1234	20.0	15.6			
	2800	OTTA	24 R	1330.0	1344	14.0	2.6	1.3		
	2800	OTTA	27A RF	1330.0		180.0	2.6			
	2800	OTTA	2 S/F	1339.7	1340.7	3.5	3.8	1.6		
	2800	OTTA	24P R	1344.0		124.0	2.6			
	2800	OTTA	21 GRF	1455.0	1514	52.0	3.6	1.8		
	2800	OTTA	4 S/F	1512.5	1518	2.5	21.0	7.0		
	2800	OTTA	26 FAL	1548.0	1630	42.0	-5.8	-2.9		
	2800	OTTA	20 GRF	1640.0	1730	74.0	3.2	1.8		
	2800	OTTA	22 GRF	1755.0	2010	205.0	3.6	1.8		
	2800	OTTA	4 S/F	2206.4	2207.5	4.6	22.0	8.0		
	2800	OTTA	29 PBI	2211.0	2211	15.0	3.6	1.8		
13	2695	PENT	3 S	0034.7	0036	5.0	50.0	16.7		
	2695	PENT	1 S	0050.5	0054.5	6.0	4.4	2.6		
	8400	BERN	2	0621.0	0621.8	1.8	7.0			
	8400	BERN	22	0811.5	0838.5	190.0U	16.0			
	2695	PENT	1 S	1405.0	1406	1.5	4.6	2.2		
	2695	PENT	1 S	1415.0	1415.5	1.5	5.4	2.7		
	2800	OTTA	21 GRF	2130.0	2320	210.0	7.0			
	2800	OTTA	8 S	2234.7	2234.7	.1	7.0			
	2800	OTTA	1 S	2250.0	2251.5	3.0	4.2	2.1		
14	2800	OTTA	24O R	1320.0	1348	28.0	3.4	1.6		
	2800	OTTA	21 GRF	1447.0	1530	70.0	6.8			
	2800	OTTA	4 S/F	1448.0	1449.6	15.0	19.0	8.4		
	2800	OTTA	28 PRE	1658.0		2.0	3.4	2.6		
	2800	OTTA	3 S	1700.0	1701.9	3.0	50.0	16.8		
	2800	OTTA	30 PBI	1703.0	1703	7.0	3.4	1.7		
	2695	PENT	2 S/F	1705.0	1706	3.0	6.2	3.2		
	2800	OTTA	21 GRF	1810.0	1900	170.0	4.6	2.3		
	2800	OTTA	3 S	1822.0	1823.7	5.0	66.0	17.0		
	2800	OTTA	29 PBI	1827.0	1827	15.0	2.2	1.1		
	2800	OTTA	20 GRF	2155.0	2220	75.0	3.6	2.0		
15	2800	OTTA	4 S/F	1315.7	1317.7	8.0	29.8	10.0		
	2800	OTTA	20 GRF	1350.0	1530	190.0	5.6	3.0		
	2800	OTTA	4 S/F	1727.0	1727.8	5.0	23.0	5.0		

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

JUNE 1980

DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	REMARKS
15	2800	OTTA	1 S	2027.0	2020.5	1.5	8.4	4.2		
16	2695	PENT	240AR	2285.0	2450	165.0	16.2	8.1		
	2695	PENT	1 S	2329.0	2332.5	8.0	6.4	3.2		
17	2800	OTTA	22 GRF	1130.0	1220	200.0	4.4	3.0		
	2800	OTTA	20 GRF	1740.0		135.0	3.0	2.3		
	2695	PENT	20 GRF	2240.0	2400	160.0	7.6	3.4		
18	2800	OTTA	240 R	1210.0	1240	30.0	3.6	1.8		
	2800	OTTA	240 R	1400.0	1455	55.0	3.6	1.8		
	2800	OTTA	21 GRF	1850.0	1917	55.0	14.6	5.8		
	2800	OTTA	2 S/F	1852.2	1853.8	3.5	5.6	2.0		
	2695	PENT	240AR	2245.0	2450	125.0	8.6	4.3		
	2695	PENT	3 S	2317.4	2317.7	3.0	31.0	10.4		
	2695	PENT	1 S	2418.0	2418.2	1.0	3.4	1.7		
19	2695	PENT	8 S	0134.2	0134.4	.4	5.2	2.6		
	8400	BERN	20	0704.0	0752.0U	90.0	14.0			
	2800	OTTA	22 GRF	1100.0	1114	90.0	10.2	5.0		
	2800	OTTA	21 GRF	1610.0	1655	115.0	5.8	2.9		
	2800	OTTA	20 GRF	1620.0	1624	12.0	4.0	2.0		
	2800	OTTA	20 GRF	1742.0	1744	20.0	5.4	3.6		
[	2800	OTTA	46F C	1830.5	1834.5	5.5	33.4	13.2		
	2800	OTTA	30 PBI	1836.0	1836	40.0	10.4	3.4		
	2800	OTTA	4 S/F	1838.0	1839.1	4.0	200.0	40.6		
	2800	OTTA	21 GRF	1945.0	2020	165.0	25.0	13.0		
	2800	OTTA	4 S/F	1949.0	1951.5	8.0	50.0	25.0		
	2695	PENT	21 GRF	2245.0	2305	165.0	5.0	3.2		
	2695	PENT	1 S	2348.3	2349	1.7	4.0	2.0		
20	8400	BERN	3	0450.2	0451.4	2.0	35.0U			
	2800	OTTA	22 GRF	1145.0	1152	65.0	7.4	3.4		
	2800	OTTA	1 S	1509.5	1510.2	2.0	3.4	1.4		
	2800	OTTA	21 GRF	1640.0	1715	120.0	4.2	2.1		
	2800	OTTA	20 GRF	1815.0	1819	15.0	2.4	1.2		
	2800	OTTA	22 GRF	1900.0	1905	55.0	2.8	1.4		
	2800	OTTA	20 GRF	2000.0	2015	115.0	5.0	2.5		
21	[2695	PENT	47 GB	0038.0	0119	50.0	522.0	89.0		
	2695	PENT	29 PBI	0128.0	0128	20.0D	32.0			
	8400	BERN	3	0553.2	0554.0	2.0	43.0			
	8400	BERN	1	0845.5	0845.5	2.0	15.0			
	2800	OTTA	23 GRF	1730.0	1925	150.0	3.8	2.2		
	2800	OTTA	1 S	1916.0	1916.9	2.5	4.0	1.8		
	2800	OTTA	21 GRF	2010.0	2036	110.0	5.0	2.5		
	2800	OTTA	1 S	2030.2	2030.5	3.0	7.6	2.6		
	2800	OTTA	45 C	2105.0	2111	21.0	7.6	2.6		
	2800	OTTA	1 S	2250.5	2251.1	1.5	6.2	3.0		
22	2800	OTTA	240 R	1100.0	1135	35.0	10.6	5.3		
	2800	OTTA	1 S	1220.0	1222.8	6.0	4.2	1.8		
	2800	OTTA	21 GRF	1300.0	1327	330.0	27.4	13.7		
	2800	OTTA	40 F	1302.0	1305.7	20.0	12.8			
	8400	BERN	20	1302.0	1330.3	120.0U	28.0			
	2800	OTTA	1 S	1426.0	1428	6.0	3.4	1.7		
	2800	OTTA	20 GRF	1510.0	1517	50.0	5.6	2.8		
	2800	OTTA	1 S	1641.5	1642	2.0	3.0	1.5		
	2800	OTTA	23 GRF	1855.0	2020	305.0	26.6	17.0		
	2800	OTTA	45 C	1902.3	1903	3.0	8.6	4.3		
23	2695	PENT	240AR	0020.0	0050	30.0	6.0			
	2695	PENT	1 S	0029.0	0029.1	1.0	4.8	2.4		
	8400	BERN	3	0523.0	0523.3	1.0	13.0			
	8400	BERN	4	0623.0	0624.5	17.0U	14.0			
	2800	OTTA	20 GRF	1235.0	1239	17.0	8.8	3.0		
	2800	OTTA	260 FAL	1610.0	1650	40.0	-5.2	-2.8		
	2800	OTTA	22 GRF	1820.0	1955	240.0	14.0	7.0		
	2695	PENT	23 GRF	2240.0	2435	190.0D	14.8			
	2695	PENT	45 C	2334.3	2336.5	13.0	19.2	9.6		
	2695	PENT	3 S	2359.0	2400	2.5	14.0	5.8		
24	3200	BERN	20	0633.0	0636.5	45.0	.0			OPR
	8400	BERN	8	1030.0	1130.1	1.0	20.0			
	2800	OTTA	21 GRF	1242.0	1340	155.0	18.8	7.0		
[	3200	BERN	20	1251.0U	1258.7	120.0U	.0			OPR
[	2800	OTTA	3 S	1257.0	1259	4.0	12.2	5.0		
[	2800	OTTA	29 PBI	1301.0	1301	20.0	13.0	6.5		
	2800	OTTA	21 GRF	1520.0	1550	75.0	8.2	4.2		
[	3200	BERN	20	1521.0	1522.7	20.0U	.0			OPR
[	2800	OTTA	3 S	1522.0	1523	3.0	29.4	14.7		
[	2800	OTTA	29 PBI	1525.0	1525	10.0	8.8	4.0		
	2800	OTTA	20 GRF	1640.0	1702	60.0	6.6	3.3		
	2800	OTTA	21 GRF	1950.0	2006	75.0	8.6	2.9		
	2800	OTTA	4 S/F	1958.0	1959	2.0	19.6	12.0		

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

JUNE 1980

DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	REMARKS
				UT	UT	MINUTES	PEAK	MEAN		
24	2800	OTTA	21 GRF	2135.0	2200	55.0	4.4	2.2		
	2800	OTTA	20 GRF	2145.0	2147.7	11.0	10.6	3.6		
	2695	PENT	20 GRF	2250.0	2317	100.0	11.8	3.9		
25	2695	PENT	1 S	0047.0	0048.2	6.0	6.6	3.0		
	2695	PENT		0147.0	0149	5.0D	9.4			
	2800	OTTA	20 GRF	1050.0	1110	80.0	5.2	2.6		
	8400	BERN	20	1236.0	1238.1	30.0D	33.0			
	2800	OTTA	3 S	1236.0	1237.6	6.0	31.6	21.0		
	3200	BERN	20	1236.0	1237.3	100.0	.0			OPR
	2800	OTTA	29 PBI	1242.0	1242	60.0	11.4	5.7		
	3200	BERN	20	1547.0	1551.7	120.0	.0			OPR
	2800	OTTA	21 GRF	1548.0	1623	120.0	15.8	9.2		
	2800	OTTA	46F C	1549.5	1552	12.5	86.0	43.0		
	8400	BERN	4	1550.0	1553.3	20.0	196.0			
	2800	OTTA	29 PBI	1602.0	1602	12.0	12.0	5.0		
	2800	OTTA	20 GRF	1820.0	1845	55.0	3.2	1.6		
	2800	OTTA	1 S	1952.0	1953	2.0	6.4	2.2		
26	2695	PENT	4 S/F	0119.0	0119.3	3.0	12.0	4.0		
	8400	BERN	41	1437.6	1439.3	14.0	12.0			
	3200	BERN	41	1437.6	1439.2	14.0	.0			OPR
	2800	OTTA	1 S	1438.0	1439.5	4.0	7.8	2.6		
	2800	OTTA	3 S	1651.0	1651.4	2.0	10.0	3.4		
	3200	BERN	3	1651.2	1652.5	13.0	.0			OPR
	2800	OTTA	21 GRF	1910.0	1955	110.0	3.8	2.0		
	2800	OTTA	1 S	1945.0	1946	2.5	5.6	2.8		
	2695	PENT	3 S	2339.8	2340.5	1.7	18.6	9.3		
	2695	PENT	30 PBI	2341.5	2341.5	13.0	5.6	2.8		
	2695	PENT	1 S	2344.0	2345.5	3.0	7.2	3.6		
27	2695	PENT	3 S	0036.0	0038	3.0	12.0	9.0		
	2695	PENT	4 S/F	0112.0	0113	2.0	18.6	9.3		
	2695	PENT	29 PBI	0114.0	0114	38.0D	5.6			
	8400	BERN	4	0606.0	0607.5	10.0	26.0			OPR
	3200	BERN	4	0606.0	0607.5	18.0U	.0			OPR
	2800	OTTA	21 GRF	1230.0	1400	150.0	5.2	2.6		
	8400	BERN	22	1345.5	1349.5	11.0	11.0			OPR
	3200	BERN	22	1345.5	1349.5	11.0	.0			OPR
	2800	OTTA	2 S/F	1348.0	1349.2	3.0	6.4	3.0		
	2800	OTTA	3 S	1613.0	1616.5	9.0	325.0	76.0		
	2800	OTTA	29 PBI	1622.0	1622	30.0	9.6	2.6		
	2800	OTTA	20 GRF	1820.0	1940	135.0	3.4	2.4		
28	8400	BERN	3	0746.8	0748.0	3.0	63.0			OPR
	2800	OTTA	27A RF	1105.0		235.0	3.4	3.0		
	2800	OTTA	24 R	1105.0	1130	25.0	3.4	1.7		
	2800	OTTA	24P R	1130.0		175.0	3.4			
	2800	OTTA	20 GRF	1154.0	1156	14.0	3.4	1.7		
	3200	BERN	23	1313.0	1313.1	92.0	.0			OPR
	2800	OTTA	3 S	1313.3	1313.9	1.0	10.6	5.3		
	2800	OTTA	1 S	1323.0	1324.5	3.0	2.6	1.3		
	2800	OTTA	1 S	1327.2	1329	3.5	9.4	4.4		
	2800	OTTA	26 FAL	1425.0	1500	35.0	-3.4	-2.0		
	2800	OTTA	21 GRF	1530.0	1640	150.0	4.2	2.1		
	2800	OTTA	1 S	1728.3	1728.9	1.0	4.2	1.9		
	2800	OTTA	20 GRF	2100.0	2220	250.0	6.6	3.6		
29	3200	BERN	47	1041.0	1042.3	11.0	.0			OPR
	8400	BERN	47	1041.0	1042.3U	7.0	300.0D			OPR
	2800	OTTA		1044.0E	1044.3	8.0D	73.0			
	2800	OTTA	29 PBI	1052.0	1052	90.0	4.4	2.2		
	2800	OTTA	20 GRF	1701.0	1703	40.0	3.0	1.6		
	2800	OTTA	46F C	1802.3	1802.6	6.0	21.0	6.2		
	2800	OTTA	46F C	1822.5	1823.4	6.5	198.0	67.0		
	2800	OTTA	29 PBI	1829.0	1829	35.0	8.6	2.2		
	2800	OTTA	1 S	1934.0	1934.2	3.0	8.6	2.2		
	2800	OTTA	1 S	1943.5	1944	1.0	2.2	1.1		
	2800	OTTA	1 S	2021.8	2022	1.0	5.6	2.8		
	2800	OTTA	1 S	2026.1	2027	3.0	9.4	3.1		
	2800	OTTA	1 S	2056.8	2057.2	1.3	5.2	2.6		
	2800	OTTA	3 S	2145.5	2146	3.0	21.6	5.4		
	2800	OTTA	1 S	2159.4	2159.5	1.0	8.6	4.3		
	2800	OTTA	2 S/F	2217.0	2220.2	4.0	8.6	4.0		
	2800	OTTA	8 S	2238.8	2238.9	.5	2.6	1.3		
	2695	PENT	1 S	2330.5	2330.9	3.0	5.0	2.2		
	2695	PENT	1 S	2335.0	2335.6	2.0	5.8	2.0		
30	2800	OTTA	20 GRF	0055.0	0150	60.0D	10.2			
	3200	BERN	1	0720.0	0722.2	16.0	.0			OPR
	2800	OTTA	21 GRF	1325.0	1340	70.0	2.8	1.4		
	2800	OTTA	46F C	1335.0	1339	4.5	64.6	10.2		
	3200	BERN	41	1335.0	1338.8	20.0	.0			
	8400	BERN	46	1335.0	1338.8	20.0	38.0			
	2800	OTTA	21 GRF	1522.0	1535	85.0	4.6	2.3		

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

JUNE 1980

DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	REMARKS
				UT	UT	MINUTES	PEAK	MEAN		
30	8400	BERN	4	1522.5	1528.3	33.0	37.0			
	3200	BERN	4	1522.5	1528.3	33.0	.0			OPR
	2800	OTTA	8 S	1524.0	1524.1	.3	4.6			
	2800	OTTA	8 S	1526.5	1526.6	.5	3.8			
	2800	OTTA	4 S/F	1528.0	1528.5	2.5	135.0	41.0		
	2800	OTTA	1 S	1531.0	1531.7	3.0	9.6	4.6		
	2800	OTTA	260 FAL	1700.0	1730	30.0	-3.8	-1.9		
	2800	OTTA	21 GRF	1750.0	1840	175.0	6.2	3.6		
	2800	OTTA	46F C	1823.0	1825	6.0	7.6	3.8		
	2800	OTTA	1 S	2132.0	2134	5.0	6.0	3.0		
	2800	OTTA	20 GRF	2240.0	2250	40.0	3.6	1.8		
	2695	PENT	1 S	2337.0	2337.3	1.5	2.8	1.4		

Observatories:

BERN = Berne BOUL = Boulder MANI = Manila OTTA = Ottawa ARO PENT = Penticton SGMR = Sagamore Hill

Explanation of Type Code:

1 Simple 1
2 Simple 1F
3 Simple 2
4 Simple 2F
5 Simple
6 Minor
7 Minor +
8 Spike
20 Simple 3
21 Simple 3A
22 Simple 3F
23 Simple 3AF
24 Rise
25 Rise A
26 Fall
27 Rise and Fall
28 Precursor
29 Post Burst Increase
30 Post Burst Increase A
31 Post Burst Decrease
32 Absorption
40 Fluctuation
41 Group of Bursts
42 Series of Bursts
43 Onset of Noise Storm
44 Noise Storm in Progress
45 Complex
46 Complex F
47 Great Burst
48 Major
49 Major +

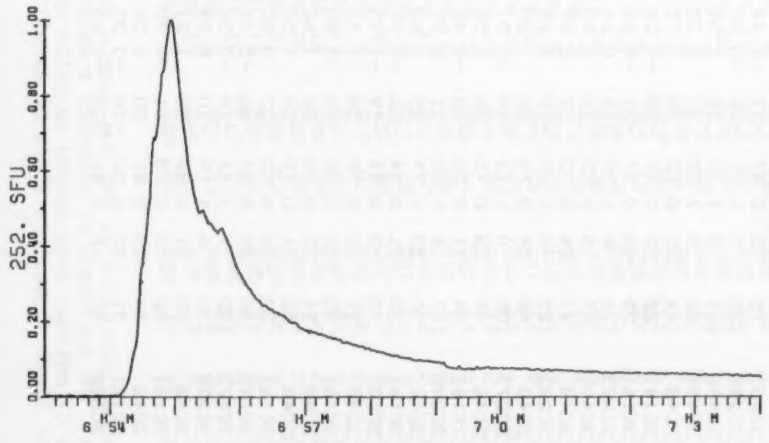
SELECTED SOLAR NOISE BURSTS
JUNE 4-21, 1980
INSTITUTE OF APPLIED PHYSICS, UNIVERSITY OF BERNE, SWITZERLAND

SELECTED SOLAR NOISE BURSTS

JUNE 4-21, 1980

INSTITUTE OF APPLIED PHYSICS, UNIVERSITY OF BERNE, SWITZERLAND

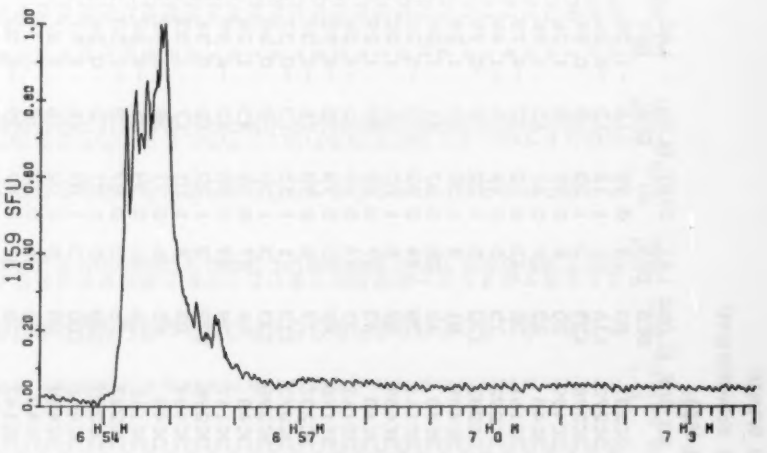
I 5.0, F=5.0 GHZ, BW=500.0 MHZ, T=1.0 SEC



UT ON JUNE4 1980

INSTITUTE OF APPLIED PHYSICS, UNIVERSITY OF BERNE, SWITZERLAND

I19.6, F=19.6 GHZ, BW=600.0 MHZ, T=1.0 SEC



UT ON JUNE4 1980

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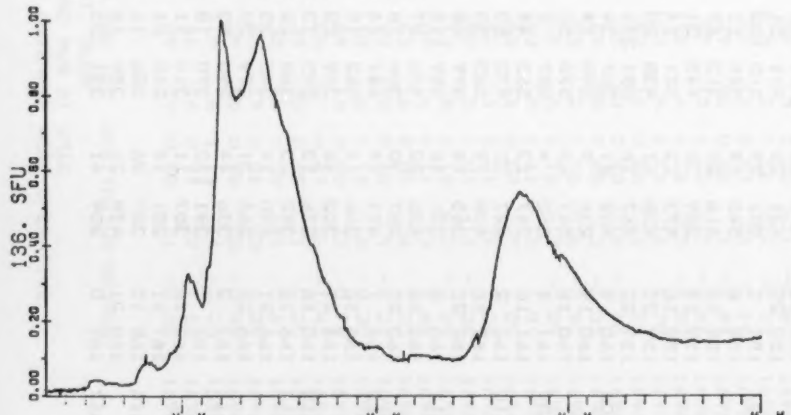
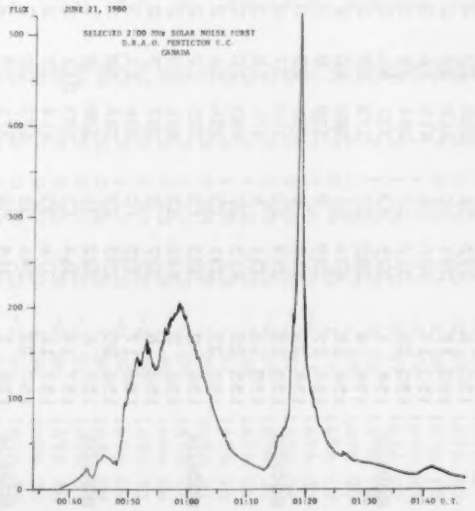
I 5.0, F=5.0 GHZ, BW=500.0 MHZ, T=1.0 SEC



UT ON JUNE 8 1980



SOLAR WIND

Interplanetary Scintillations

JUNE 1980

DATE	DOY	UT HR	VMID KM/S	ERR	VPK KM/S	ERR	RATING 1-4	SOURCE	ELONG DEG	LAT DEG	DIST AU	DLON DEG	LAG DAY	ROTATION NUMBER
800601	153	2	355	22	388	27	2	3C237	80	-4	0.99	-16	-1.30	1695.58
	153	3	400	18	449	64	2	3C273	116	-1	1.16	-13	-0.26	1695.57
	153	6	275	56	300	23	2	3C298	135	3	1.23	-8	0.89	1695.45
	153	15	291	10	318	24	2	3C459	80	4	0.99	18	1.26	1695.47
	153	17	400	16	415	16	3	3C48	42	29	0.67	40	1.48	1695.52
	153	22	317	10	294	29	3	3C161	38	-43	0.62	-32	-4.73	1695.71
800602	154	1	325	43	337	96	2	3C222	73	-5	0.96	-16	-1.48	1695.61
	154	4	282	22	373	97	2	3C283	132	-5	1.22	-9	0.75	1695.50
	154	15	426	61	388	60	2	3C459	81	4	1.00	17	1.24	1695.58
	154	17	359	9	338	9	3	3C48	42	28	0.67	41	1.33	1695.55
	154	22	265	8	281	23	3	3C161	38	-44	0.62	-33	-5.20	1695.73
800603	155	15	299	10	312	37	2	3C459	82	4	1.00	16	1.20	1695.54
	155	16	351	9	371	14	3	3C48	43	27	0.68	40	1.29	1695.58
	155	22	415	20	483	20	2	3C161	37	-45	0.60	-32	-4.26	1695.82
	155	23	231	13	256	56	2	3C196	48	20	0.74	-38	-4.95	1695.72
800604	156	2	323	10	325	12	2	3C237	77	-4	0.98	-16	-1.37	1695.68
	156	3	440	65	421	33	2	3C273	113	-1	1.15	-13	-0.37	1695.70
	156	6	327	8	387	7	2	3C298	133	3	1.22	-8	0.60	1695.61
	156	17	335	10	306	11	3	3C48	44	27	0.69	40	1.26	1695.61
	156	20	255	23	324	58	2	3C147	29	49	0.48	-42	-6.99	1695.85
800605	157	6	322	31	328	8	2	3C298	132	3	1.22	-10	0.51	1695.65
	157	14	364	13	383	211	2	3C459	84	4	1.01	17	1.33	1695.65
	157	16	376	33	414	37	2	3C48	45	26	0.71	38	1.42	1695.66
	157	22	346	31	473	30	2	3C161	36	-46	0.59	-31	-4.62	1695.87
800606	158	1	314	48	371	19	2	3C237	76	-3	0.97	-18	-1.53	1695.74
	158	4	358	10	309	19	2	3C283	128	-5	1.21	-10	0.26	1695.71
	158	13	398	93	286	36	2	3C446	100	3	1.09	16	1.61	1695.70
	158	15	345	9	355	9	3	3C459	85	5	1.02	16	1.27	1695.68
	158	16	446	26	409	52	2	3C48	46	26	0.72	39	1.74	1695.72
	158	20	421	20	401	51	2	3C147	28	52	0.47	-39	-5.33	1695.97
800607	159	1	501	79	510	103	2	3C237	75	-3	0.97	-17	-1.44	1695.86
	159	6	540	14	545	11	3	3C298	130	4	1.21	-10	-0.04	1695.83
	159	13	416	20	513	67	2	3C446	101	3	1.10	16	1.59	1695.74
	159	14	389	36	445	31	2	3C459	86	5	1.02	17	1.35	1695.74
	159	16	473	13	521	14	3	3C48	46	25	0.72	38	1.75	1695.76
	159	20	428	61	438	20	2	3C147	28	53	0.47	-38	-5.26	1696.01
	159	22	467	16	681	241	2	3C161	35	-48	0.57	-31	-4.06	1695.98
800608	160	4	402	81	307	34	2	3C283	126	-4	1.20	-10	0.14	1695.81
	160	14	236	9	349	14	2	3C459	87	5	1.03	16	1.43	1695.66
	160	16	567	66	570	50	2	3C48	47	24	0.73	37	1.87	1695.81
800609	161	4	362	*	287	*	2	3C283	125	-4	1.20	-10	0.24	1695.83
	161	16	347	13	563	44	2	3C48	48	24	0.74	36	1.30	1695.79
800610	162	2	427	33	472	63	2	3C273	108	0	1.13	-14	-0.57	1695.92
	162	16	408	79	563	33	2	3C48	49	23	0.75	36	1.58	1695.85
	162	21	365	14	399	68	2	3C161	34	-51	0.56	-28	-4.42	1696.06
800611	163	6	331	46	359	112	2	3C298	127	4	1.20	-11	0.29	1695.88
	163	16	426	22	440	27	4	3C48	50	23	0.77	35	1.62	1695.90
	163	21	287	30	306	18	3	3C161	33	-51	0.54	-26	-4.97	1696.07
800612	164	1	471	14	441	14	2	3C237	70	-3	0.94	-19	-1.75	1696.05
	164	16	366	14	362	15	4	3C48	51	22	0.78	34	1.43	1695.91
	164	21	302	46	309	22	3	3C161	33	-52	0.54	-26	-4.80	1696.11
800613	165	16	376	13	395	13	4	3C48	51	22	0.78	34	1.42	1695.95
800614	166	16	392	23	368	22	4	3C48	52	21	0.79	34	1.54	1696.00
	166	21	420	14	345	35	2	3C161	32	-54	0.53	-22	-3.82	1696.21
	166	22	264	31	279	20	2	3C196	40	29	0.64	-42	-5.76	1696.19
800615	167	2	336	44	290	53	2	3C273	103	1	1.11	-14	-0.54	1696.06
	167	5	391	112	370	18	2	3C298	123	4	1.19	-10	0.09	1696.07
	167	16	307	11	315	11	4	3C48	53	21	0.80	33	1.21	1695.99
	167	21	281	14	240	21	3	3C161	32	-55	0.53	-21	-4.73	1696.20
800616	168	15	327	26	326	16	4	3C48	54	20	0.81	33	1.36	1696.04
	168	21	459	21	350	16	2	3C161	31	-55	0.52	-18	-3.37	1696.28
800617	169	0	209	41	231	35	2	3C222	59	-8	0.86	-28	-3.45	1696.11

SOLAR WIND

Interplanetary Scintillations

JUNE 1980

DATE	DOY	UT HR	VMID KM/S	ERR	VPK KM/S	ERR	RATING 1-4	SOURCE	ELONG DEG	LAT DEG	DIST AU	DLON DEG	LAG DAY	ROTATION NUMBER
	169	16	331	12	334	14	3	3C48	55	20	0.82	31	1.27	1696.08
	169	21	293	10	287	25	3	3C161	31	-56	0.52	-17	-4.38	1696.27
800618	170	1	283	32	289	28	2	3C237	64	-4	0.90	-26	-2.64	1696.20
	170	16	335	10	358	21	3	3C48	56	19	0.83	31	1.34	1696.12
800619	171	2	364	13	394	28	2	3C273	99	1	1.09	-16	-0.79	1696.23
	171	4	362	16	358	17	2	3C295	90	15	1.04	-10	-0.59	1696.22
	171	5	331	10	334	28	2	3C298	120	5	1.18	-12	0.06	1696.18
	171	14	466	15	397	17	3	3C459	97	6	1.08	17	1.54	1696.20
	171	16	297	7	298	12	3	3C48	57	19	0.84	30	1.24	1696.13
	171	21	288	13	271	12	3	3C161	30	-57	0.50	-11	-4.11	1696.33
800620	172	0	339	74	329	64	2	3C222	56	-9	0.83	-32	-3.37	1696.34
	172	1	305	40	405	58	2	3C237	62	-4	0.88	-26	-2.69	1696.30
	172	5	315	13	368	9	2	3C298	119	5	1.18	-12	0.08	1696.21
	172	13	316	16	355	39	3	3C459	98	6	1.08	15	1.61	1696.16
	172	15	379	11	366	10	2	3C48	57	18	0.84	28	1.30	1696.21
800621	173	5	345	10	339	10	2	3C298	118	5	1.17	-13	-0.09	1696.27
	173	16	401	13	395	32	3	3C48	58	18	0.85	29	1.42	1696.26
800622	174	1	351	17	437	78	2	3C237	60	-4	0.87	-28	-2.88	1696.41
	174	5	314	32	315	13	2	3C298	117	5	1.17	-13	-0.02	1696.28
	174	16	374	14	370	17	4	3C48	59	18	0.86	28	1.39	1696.29
800623	175	0	537	19	609	27	2	3C222	54	-9	0.81	-35	-3.31	1696.53
	175	0	449	45	571	21	2	3C237	59	-4	0.86	-29	-2.86	1696.48
	175	15	392	12	398	12	4	3C48	60	17	0.87	27	1.39	1696.33
	175	20	389	19	330	45	2	3C161	30	-58	0.50	-3	-2.66	1696.48
	175	21	425	39	370	32	2	3C196	35	39	0.57	-46	-5.36	1696.60
	175	23	310	87	305	42	2	3C216	41	26	0.66	-43	-5.40	1696.54
800624	176	0	395	17	382	32	3	3C237	59	-4	0.86	-31	-3.04	1696.51
	176	2	427	14	429	15	3	3C273	94	2	1.06	-16	-0.95	1696.45
	176	4	383	57	343	62	2	3C295	88	15	1.03	-11	-0.69	1696.42
	176	5	521	16	526	34	3	3C298	115	5	1.16	-12	-0.39	1696.46
	176	15	307	20	360	16	3	3C48	61	17	0.87	26	1.14	1696.33
	176	20	278	19	288	37	2	3C161	29	-58	0.48	1	-3.44	1696.48
800625	177	3	373	19	336	17	2	3C295	87	15	1.03	-10	-0.67	1696.45
	177	5	378	11	385	11	3	3C298	115	6	1.16	-13	-0.23	1696.44
	177	13	309	88	306	115	2	3C459	103	6	1.11	16	1.78	1696.34
	177	15	327	12	355	23	4	3C48	62	16	0.88	26	1.28	1696 37
	177	18	294	12	342	17	3	3C147	27	64	0.45	18	-2.16	1696.48
	177	20	378	44	335	49	2	3C161	29	-58	0.48	3	-2.35	1696 54
800626	178	2	371	19	360	10	3	3C273	93	2	1.06	-16	-0.92	1696 50
	178	5	404	30	413	22	3	3C298	114	6	1.16	-13	-0.29	1696.49
	178	13	299	14	271	14	2	3C459	103	6	1.11	16	1.81	1696.37
	178	15	356	10	353	10	4	3C48	63	16	0.89	25	1.29	1696.43
	178	19	306	39	303	59	2	3C144	12	1	0.21	78	1.04	1696.41
800627	179	2	396	14	385	14	3	3C273	92	2	1.05	-17	-1.06	1696.55
	179	5	310	56	312	19	2	3C298	113	6	1.15	-13	-0.09	1696.47
	179	13	363	65	340	12	2	3C459	104	6	1.11	15	1.69	1696.45
	179	15	357	18	321	49	3	3C48	63	16	0.89	24	1.23	1696.46
	179	20	332	55	367	17	2	3C161	29	-58	0.48	9	-2.27	1696.59
800628	180	4	367	82	506	266	2	3C298	112	6	1.15	-13	-0.30	1696.55
	180	15	207	45	265	81	2	3C48	64	15	0.90	23	0.78	1696.38
	180	18	292	24	338	114	2	3C147	28	61	0.47	26	-1.45	1696.56
	180	20	323	19	384	60	3	3C161	29	-58	0.48	11	-2.20	1696.61
	180	21	396	52	303	40	2	3C196	32	45	0.53	-44	-5.61	1696.78
800629	181	15	390	26	358	25	3	3C48	65	15	0.91	23	1.29	1696.55
	181	18	315	21	344	22	3	3C147	29	60	0.48	28	-0.98	1696.60
800630	182	4	307	33	262	19	2	3C298	110	6	1.14	-14	-0.23	1696.58
	182	15	369	13	349	18	4	3C48	66	14	0.91	22	1.17	1696.58
	182	18	323	52	342	77	2	3C147	29	59	0.48	31	-0.68	1696.63

VMID IS A MEAN AND VPK IS A MAXIMUM VELOCITY IN THE IPS SCATTERING REGION.
THE REGION'S CENTROID IS SPECIFIED BY LAT, DIST, DLON.
LAG AND ROTATION NUMBER GIVE MAPPING TO EARTH AND SUN AT VMID.
* INDICATES NO ERROR AVAILABLE, SINCE ONLY TWO ANTENNAS WERE OPERATING.

PIONEER VII

JUNE 1980

Date JUN 1980	DSN Coverage (UT)	Data Time (UT)	ESP (°)	SOLAR WIND AMES[1] U_{H^+} (km/sec)	SOLAR WIND AMES[1] TAU (days)	SOLAR WIND MIT[2] U_{H^+} (km/sec)	SOLAR WIND MIT[2] N_{H^+} (H^+/cc)	COSMIC RAY PROTONS[3] (particles/sec) 6-13 (Mev*)	13-175 (Mev**)	>175 (Mev)
11	1624-2140	1600	113.5	339.	8.2					
		1700		339.						
		1800		339.						
		1900		339.						
		2000		302.						
		2100		302.						
		2200		302.						
21	0140-0235	0200	114.8	388.	8.2					
		0300		388.						

[1] Wolfe NASA/ARC
[2] Simpson - University of Chicago

* Includes He 0.6-13 Mev/nucleons and electrons ~0.5 Mev - see J. Retzler and J. A. Simpson, J. Geophys. Res., 74, 9, 2149-2160, 1969 for discussion of the electron response of Pioneer VII.

** Includes He >13 Mev/nucleons.
Q Used to indicate that a rate is at its quiescent level.

ESP = Earth-Sun Probe Angle.

† Peak velocity.

Note: Data sampled hourly unless otherwise noted.

PIONEER IX

JUNE 1980

Date JUN 1980	DSN Coverage (UT)	Data Time (UT)	ESP (°)	SOLAR WIND[1] U_{H^+} (km/sec)	N_{H^+} (H^+/cc)	T_{H^+} (x10^{6}°K)	TAU (days)	IP $\frac{1}{2}$-FIELD[2] 400 Hz (mv)	IMF[3] |B| (γ)	IMF[3] φ (°)	COSMIC RAY PROTONS[4] (particles/sec) >13.9 Mev	>40 Mev
6	2317-2400	2300	148.9	350.			11.65	off	5.	230.	off	
7	0000-0325	0000		350.					5.	243.		
		0100		350.					3.7	258.		
		0200		376.					3.1	257.		
		0300		363.					4.9	230.		
10	2335-0700	0000	148.5	282.			11.78	off	3.6	354.	off	
		0100		282.					3.1	339.		
		0200		282.					3.5	005.		
		0300		282.					3.7	010.		
		0400		282.					2.5	352.		
		0500		282.					4.	089.		
		0600		282.					2.7	126.		
		0700		282.					3.8	063.		
22	2348-0531	0000	146.2	338.			11.6	off	7.5	151.	off	
		0100		350.					6.3	130.		
		0200		338.					6.9	114.		
		0300		376.					9.5	172.		
		0400		376.					7.2	105.		
		0500		363.					8.2	183.		
		0600		363.					6.8	092.		
27	2147-2400	2200	144.97	468.			11.5	off	11.8	311.	off	
		2300		449.					13.3	016.		
		2400		430.					11.3	294.		
28	0000-0205	0100		430.					12.3	318.		
		0200		449.					11.4	288.		

[1] Wolfe - NASA/ARC
[2] Scarf - TRW, Inc.
[3] Sonett and Colburn - NASA/ARC
[4] Webber - Univ. of N. H.

ESP = Earth-Sun Probe Angle.

Data sampled hourly unless otherwise noted.

* 1700-2000 data not usable.

** Peak velocity-Wolfe's least squares analysis not done. The extremely low N_{H+} during this coverage caused the Least Squares program to fail.

PIONEER XII

JUNE 1980

DATE JUN 1980	TIME (UT)	ESV (°)	U_{H+} (km/sec)	N_{H+} (H^+/cc)	T_{H+} (x10^6°K)
1	1755	009.	247.	27.6	0.023
2	2313		412.	14.2	.353
3	0016		410.	9.2	.372
4	1537		350.	3.8	.065
5	1223		391.	40.8	.067
6	1838		646.	6.6	.363
7	1031		539.	12.1	.181
8	1230		447.	11.6	.195
9	1630		519.	5.4	.177
10	1708		663.	7.8	.008
11	0955		485.	6.	.029
12	1358		365.	4.6	.054
13	0719		446.	32.5	.108
14	2254		329.	14.3	.099
15	0016	000.5	330.	16.9	.116
16	1252		310.	33.1	.028
17	1848		274.	59.2	.096
18	0413		313.	54.3	.039
19	1404		322.	14.	.044
20	1103		375.	20.4	.087
21	0737		349.	18.7	.088
22	2318		361.	32.7	.044
23	1749		336.	32.1	.1
24	0504		322.	35.7	.077
25	2143		349.	15.	.125
26	0209		328.	11.	.042
27	1458		306.	8.1	.026
28	1512		292.	18.7	.081
29	0514		316.	17.	.033
30	1453		323.	25.8	.081

STANFORD MEAN SOLAR MAGNETIC FIELD

BARTELS ROTATION	DATE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
1993	MAY 7	□	□	□	□	□	■	■	■				■	■	■	■	■	■	■	■	■	■	■	□	□	□	□	□
1994	JUN 3	□	□	□	□	□	■	■	■	■	■	■	■	■	■	■	■	■	■	■	▥	■	■	□	□	□	□	□
1995	JUN 30	□	□	□	□	□	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	□	■	□	□	□	□
1996	JUL 27	□	□	□	□	□	□	□	□	□	▥	■	■	■	■	■	■	■	■	■	■	■	■	■	□	□	□	□
1997	AUG 23	□	□	□	□	□	□	□	▥	▥	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	□
1998	SEP 19	□	□	□	□	□	□	□	□	□	□	□	□	■	■	■	■	■	■	■	■				■	■	■	
1999	OCT 16	■	□	□	□	□	□	□	□	□	□	□	□	□	■	■	■	■			■	■	■	■	■	■	□	□
2000	NOV 12	□	□	□	□		□	□	□	□	□		□		□	□	□	□	□	□	□	■	■	■		▥	□	□
2001	DEC 9	□	□	□	□	□	□	□	□	□			□	□	■			□	□	□	□	■			■	■	▥	
2002	1980 JAN 5			□	□										■	■	□	□	□	□	■	■	■		■	■	■	□
2003	FEB 1	□	□	□	□	□	□	□	□	□	▥	□	□	□					□	■	□	■		■			□	□
2004	FEB 28	□	□			□	□	□	▥	▥	■		□	□	▥	■		▥	■	■	■	■	■	■	■	■	■	□
2005	MAR 26	□	□	□	□	□	□	■	■	■		■	■	□	□	□	□	□	▥	■	■	■	■	■	■	■		□
2006	APR 22	□	□	□	□	□	□	■	■	■	■	□	□	□	□	■	■	■		■				□	□	▥	□	□
2007	MAY 19	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	■	■	■	■	■	■	▥	■	■	■	□	□
2008	JUN 15	□		□	□	□	□	■	■	▥	□	□	□	□	□	□	■	■		■	■	■		□	□			

POLARITY OF THE MEAN SOLAR MAGNETIC FIELD: □ = FIELD >2μT, ▥ = -2μT ≤FIELD ≤2μT, ■ = FIELD <-2μT

No box visible indicates no data available for that day.

Note: **Data are taken daily at 2000 UT. Dates given are not Bartels Rotation dates. These earlier dates correspond** to the occurrence of phenomena on the sun which affect the Earth during the given Bartels Rotation.

STANFORD MEAN SOLAR MAGNETIC FIELD (MICROTESLA)

STANFORD MEAN SOLAR MAGNETIC FIELD (MICROTESLA)

	1979						1980					
DAY	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.	MARCH	APRIL	MAY	JUNE
01	97	24	-5	-32	-6	16	-37	94	.	-10	-7	37
02	86	21	-8	-27	.	-3	-28	96	.	-26	9	13
03	70	6	-36	-27	.	-24	1	87	50	-21	26	-16
04	35	4	-28	-36	-5	-18	.	72	53	.	55	-45
05	-33	2	-20	-45	-8	-6	.	72	12	-44	21	-57
06	-61	-6	-24	-31	-17	-1	.	57	-1	-17	-13	-42
07	-81	-8	-39	-22	-12	18	54	49	1	9	-34	-25
08	-80	-8	-46	-45	-3	35	59	31	-8	4	-42	-11
09	-70	-6	-54	.	-6	75	.	10	.	7	.	-1
10	-68	-16	-45	.	6	99	.	0	9	7	-17	-6
11	-75	-43	-47	.	29	83	.	10	21	5	.	-18
12	-23	-59	-67	-55	46	60	.	11	1	2	.	-4
13	-23	-46	-74	-62	52	32	.	3	-7	-15	.	12
14	-20	-33	-53	-49	45	44	.	.	.	-18	5	56
15	-24	-38	-41	.	26	29	.	.	-2	-12	5	54
16	-30	-61	-26	-6	.	20	.	.	-10	-14	-1	.
17	-26	-57	-18	20	13	18	.	.	-9	-8	16	63
18	-32	-41	3	29	41	.	-17	5	-8	-10	50	71
19	-16	4	15	25	35	.	-8	-13	-18	-5	73	55
20	-10	.	41	52	35	7	33	3	-42	.	78	15
21	.	41	46	64	30	6	32	-7	-41	30	92	-40
22	-16	55	64	69	.	-6	10	.	-39	95	120	-43
23	6	58	59	48	22	.	3	-32	-24	113	122	-1
24	33	68	65	50	.	.	-12	.	-20	113	46	33
25	58	74	63	35	12	35	-25	.	13	100	14	49
26	69	77	40	26	20	40	-31	6	43	56	25	37
27	83	47	37	16	27	27	.	43	53	8	64	46
28	92	40	24	3	24	23	-34	58	64	-27	57	54
29	90	32	21	-9	39	-18	-26	57	84	-28	62	6
30	82	1	7	-7	37	.	-13		75	-16	49	-22
31	53	-1		-22		.	29		25		49	

DOT SYMBOL ENTRY INDICATES NO DATA AVAILABLE FOR THE DAY.

BOULDER GEOMAGNETIC SUBSTORM LOG

JUNE 1980

DATE	ONSET TIME	DIR	COMMENTS
06/01			Minor magstorm conditions 0500-1900 UT.
06/02			Field intermittently unsettled with no distinctive SS activity.
06/03			Field intermittently unsettled.
	0630	East	Weak SS
	1210	West	
06/04			Field intermittently unsettled with no distinctive SS activity.
06/05			Field slightly unsettled
06/06			Field unsettled after 0800 UT.
	1130		Localized SS, Gillam to Back.
	1550		Sharp non-substorm deviation all mid/low latitude and Alaskan Polar Cap stations.
	2222		Strong positive impulse H-component all mid/low latitude stations.
06/07			Field active throughout the day. Variable response throughout network with no distinctive SS activity.
06/08			Field active through 1600 UT.
	0050	East	
	0630	East	
	0710	≈ center	Moderate injection into existing SS.
	1050	West	Moderate SS, several injections with recovery near 1300 UT.
06/09	0915	West	Field became active after 2100 UT.
06/10	0520	East	Minor magstorm conditions follow, lasting through 1900 UT.
06/11	0745	West	Moderate SS, magstorm conditions follow, lasting through 2000 UT.
	2230		Sharp positive impulse H-component at Boulder, Gillam, and Back. Only minor responses balance of network.
06/12			Minor magstorm conditions throughout the day.
06/13			Minor magstorm conditions throughout the day.
06/14			Field intermittently unsettled.
	1405		Weak SS
06/15			Field slightly unsettled.
06/16			Field unsettled after 0600 UT with no distinctive SS activity.
06/17			Field slightly unsettled.
06/18			Quiet day
06/19			Field unsettled after 0400 UT with no distinctive SS activity.
06/20			Field slightly unsettled.
06/21			Field unsettled.
	1615		Localized SS Norman Wells to Inuvik.
06/22			Field unsettled with no distinctive SS activity.
06/23			Field intermittently unsettled with no distinctive SS activity.
06/24	0247	SSC	Field active following SSC with no distinctive SS activity.
06/25			Field active through 0800 UT with no distinctive SS activity.
	1825		Weak positive impulse H-component all mid/low latitude stations.
06/26			Field active 1000-2200 UT with variable responses throughout network.
06/27			Quiet day
06/28			Quiet day
06/29			Field slightly unsettled.
06/30			Field intermittently unsettled.
	1130	West	

SGD 431 Part I (Prompt)

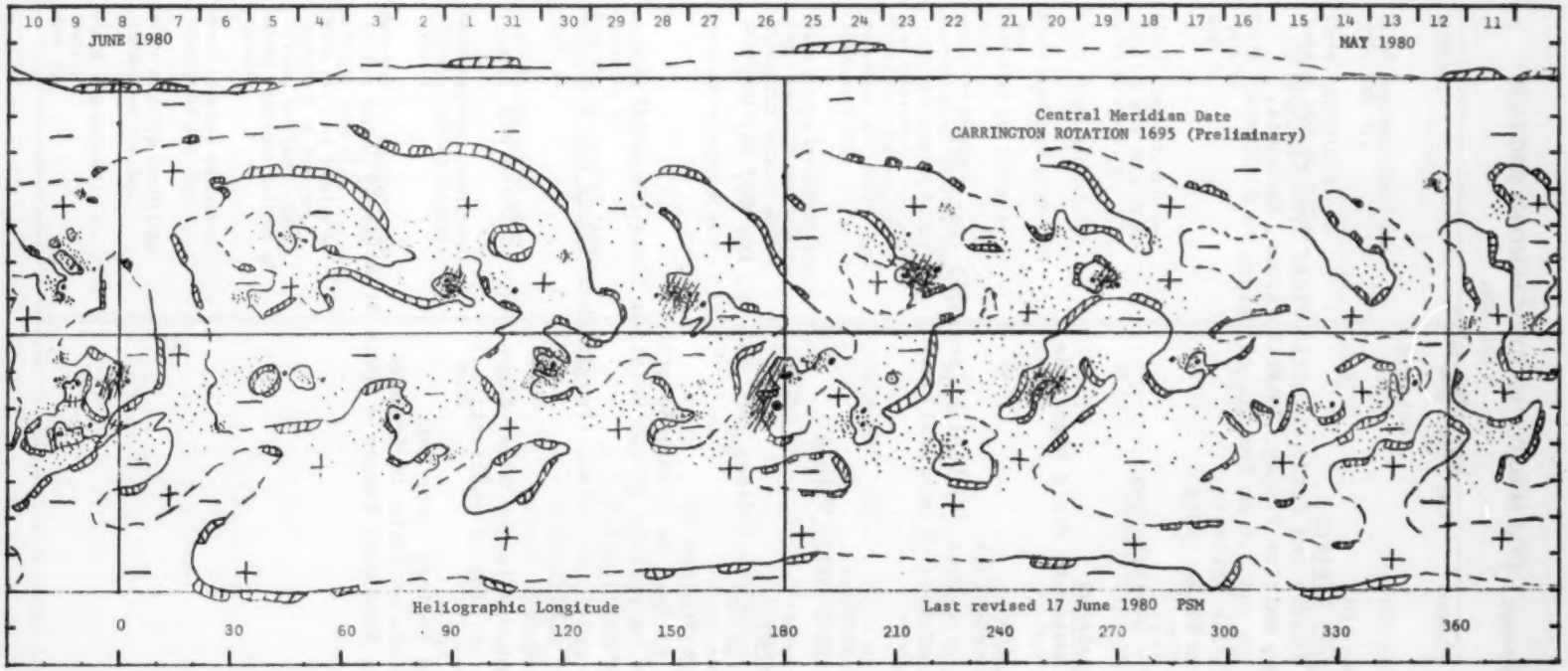
MAY 1980 DATA

Contents

	Page
Daily Solar Activity Centers	
Hα Synoptic Charts and Solar Magnetic Field Synoptic Charts	44-46
Magnetograms, Calcium Plages, Hα Filtergrams, Sunspots, Corona, 2 cm and 8.6 mm Spectroheliograms	48-109
Regions of Solar Activity	110-121
Daily Calcium Plage Index	121
Sudden Ionospheric Disturbances	122-125
Spacecraft Observations	
Pioneer XII Magnetic Field Magnitudes	125
Solar Radio Emission	
Spectral Observations	126-147
Selected Solar Events (by Radioheliograph) (Data not available at time of publication.)	
Cosmic Rays	-
Chart of Variations	148-149
Neutron Monitors Daily Values	150
Geomagnetic Indices	
Geomagnetic Activity Indices (Kp, Ap, Cp, Km, Am, aa, Kn, An, Ks, As)	151
Daily Average Indices Ap	152
Chart of Kp by Bartels 27-day Rotation	153
Chart of Dst by Bartels 27-day Rotation (Data not available at time of publication.)	
Hourly Equatorial Dst Values (Provisional) (Data not available at time of publication.)	
Principal Magnetic Storms	154
Sudden Commencements and Solar Flare Effects (Data not available at time of publication.)	
Radio Propagation Indices	
Quality Indices on Paths to Germany	155
Transmission Frequency Ranges - North Atlantic Path	156-157

Hα SYNOPTIC CHART

CARRINGTON ROTATION 1695 (PRELIMINARY)

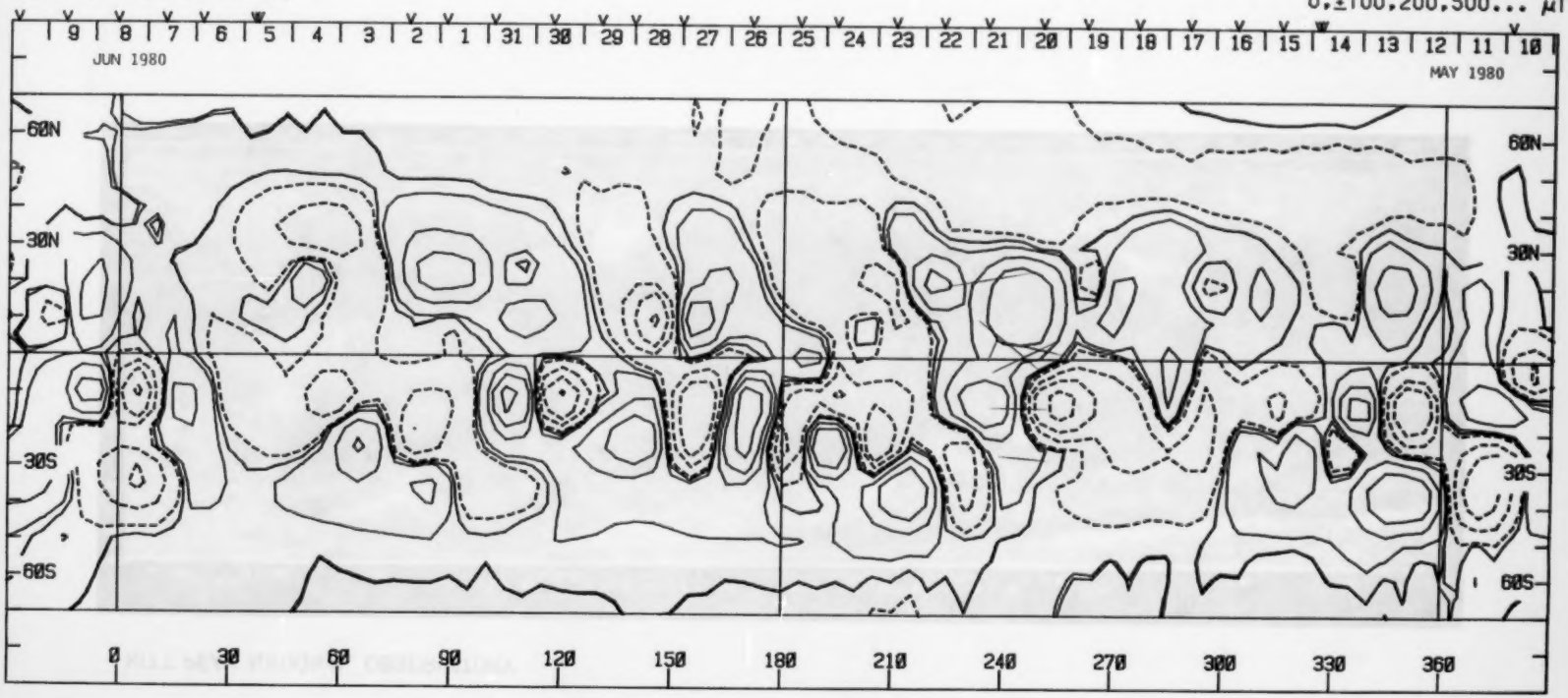


SOLAR MAGNETIC FIELD SYNOPTIC CHART

CARRINGTON ROTATION 1695

Stanford Solar Observatory

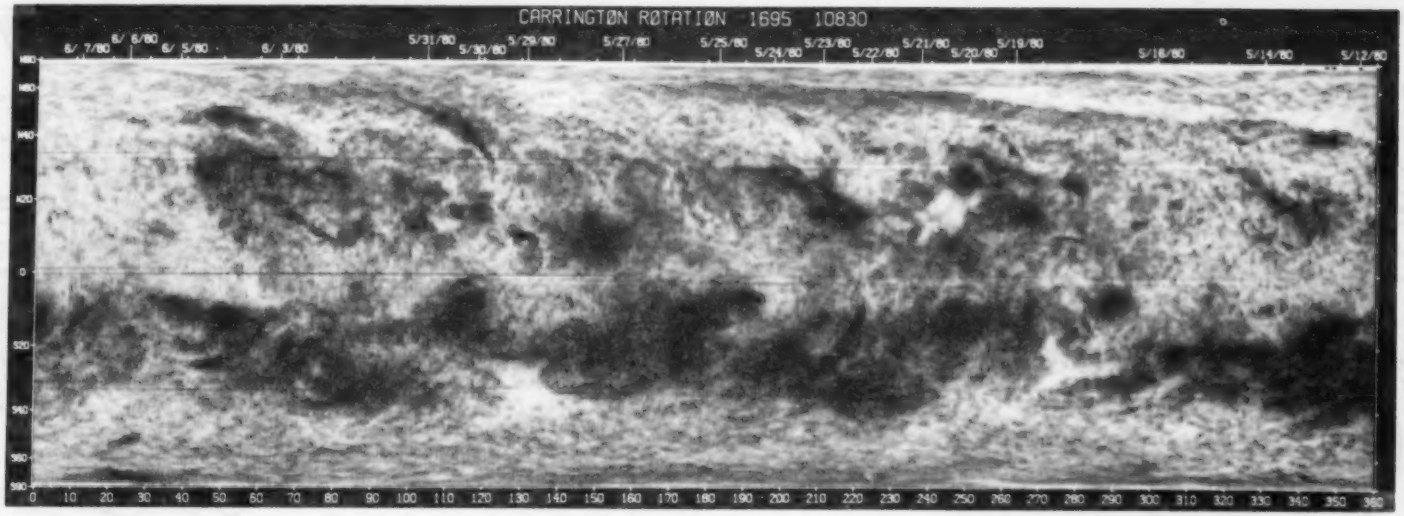
0.±100.200.500... μT



HELIUM 10830Å SYNOPTIC MAPS

CARRINGTON ROTATION 1695

KITT PEAK NATIONAL OBSERVATORY



MAY 1, 1980 (P=-24.15, B_o=-4.12, L_o=150.32)

SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å

E NO DATA W

Sp

Np

KITT PEAK Np MAGNETOGRAM
Bright-Plus
Dark -Minus

E NO DATA W

Sp

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY =
DELTAX =

E NO DATA 1-3 MAY W

Sp

Levels
± 5
± 10
± 20
± 40
± 80

01 Np Hα SAN FERNANDO Np SUNSPOTS HALE OBSERVATORIES Np CALCIUM REPORT

Sp

Sp

O1

Np

E

NO DATA

W

Sp

Hα

SAN FERNANDO

Np

SUNSPOTS

E

NO DATA

W

BOULDER
PROMINENCES

Sp

HALE OBSERVATORIES

Np

CALCIUM REPORT

E

NO DATA

W

Sp

NOSC LA POSTA

Np

2.0 CM

NO DATA

E

EQUIPMENT

W

---- UT

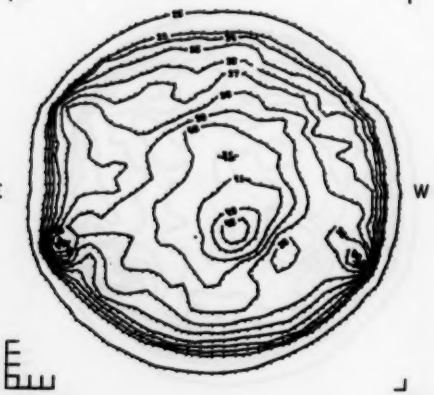
Sp

Ant. Temp. Unit 100° K

NOSC LA POSTA

Np

8.6 MM



E

W

1820 UT

Sp

Ant. Temp. Unit 100° K

STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

E

NO DATA

W

Levels

0 μT

± 50

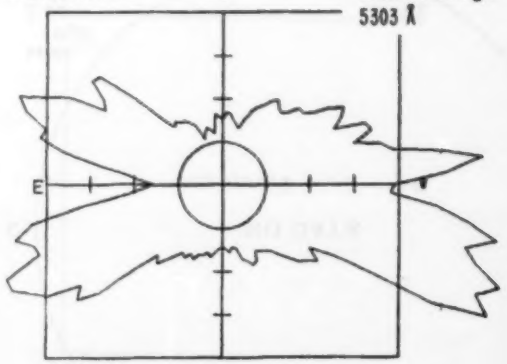
±100

±200

Sp

MAY 2, 1980 (P=-23.97, B_o=-4.02, L_o=137.10)

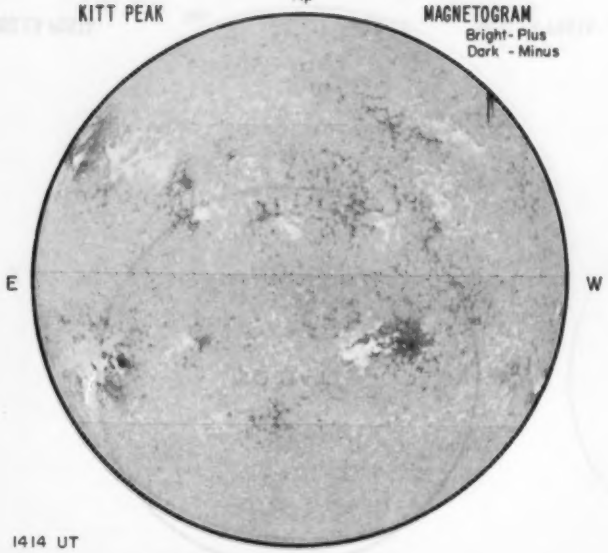
SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å



Sp

Np

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



Sp

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY =
DELTAX =

E W

Levels
± 5
± 10
± 20
± 40
± 80

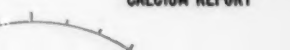
Sp

02

BIG BEAR Np Hα

SAN FERNANDO Np SUNSPOTS

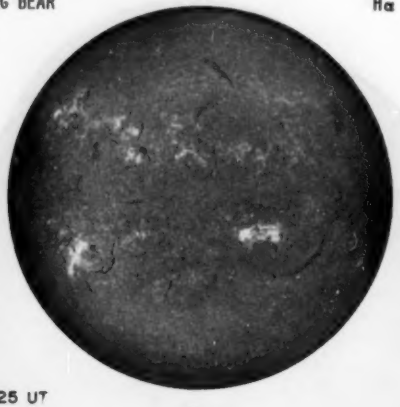
HALE OBSERVATORIES Np CALCIUM REPORT



Sp

02

BIG BEAR Np Hα

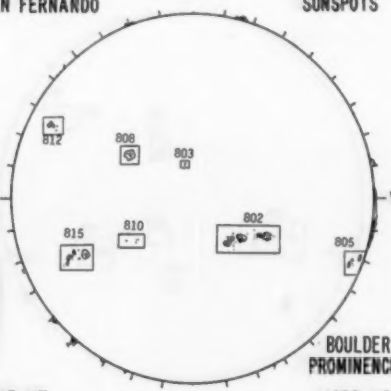


E W

1825 UT

Sp

SAN FERNANDO Np SUNSPOTS



E W

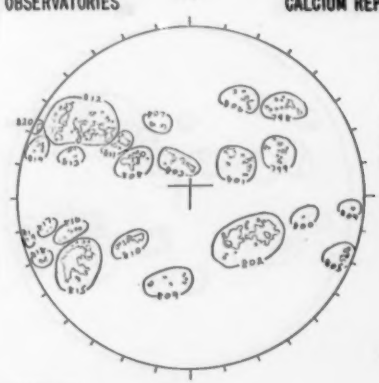
1615 UT

Sp

BOULDER PROMINENCES

1435 UT

HALE OBSERVATORIES Np CALCIUM REPORT



E W

1747 UT

Sp

	FAIR	JA
98-	0600-3.0	
99-	0500-2.5	
01-	0700-2.5	
02-	3500-3.0	
03-	0400-3.0	
04-	0100-2.5	
05-	0300-3.0	
06-	0300-3.0	
07-	0200-3.0	
08-	0600-3.0	
09-	0300-2.5	
10-	0400-3.0	
11-	0500-3.0	
12-	4100-3.5	
13-	0200-3.0	
14-	0300-3.0	
15-	3400-3.5	
16-	0200-3.0	
19-	0100-2.5	
20-	0300-3.5	

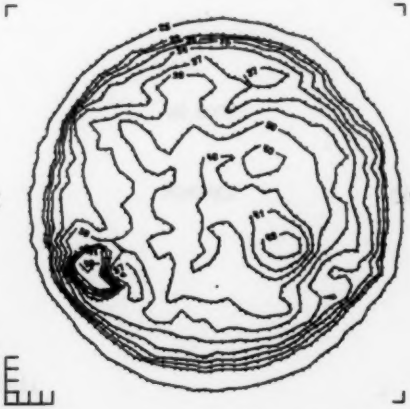
NOSC LA POSTA Np 2.0 CM

NO DATA

E EQUIPMENT W

---- UT Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM



E W

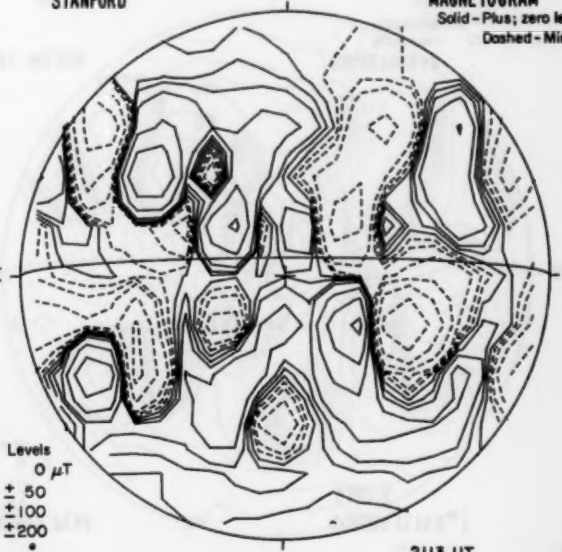
2027 UT

Sp Ant. Temp. Unit 100° K

STANFORD Np MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E W

Levels

0 μT

± 50

±100

±200

2113 UT

Sp

51

May 80

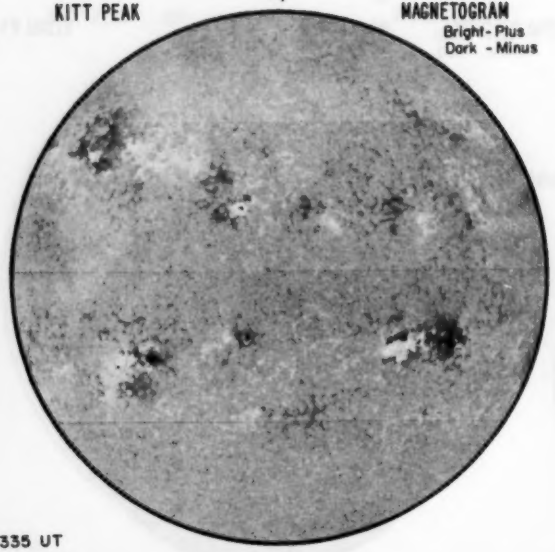
MAY 3, 1980 (P=-23.78, B_o=-3.92, L_o=123.88)

SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å

E NO DATA 3-7 MAY W

Sp
Np

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



E W

1335 UT

Sp

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY =
DELTAX =

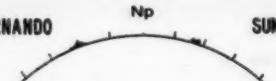
E W

Levels
± 5
± 10
± 20
± 40
± 80

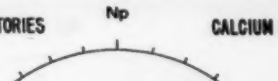
Sp

03
BIG BEAR Np Hα

SAN FERNANDO Np SUNSPOTS



HALE OBSERVATORIES Np CALCIUM REPORT



Sp

03

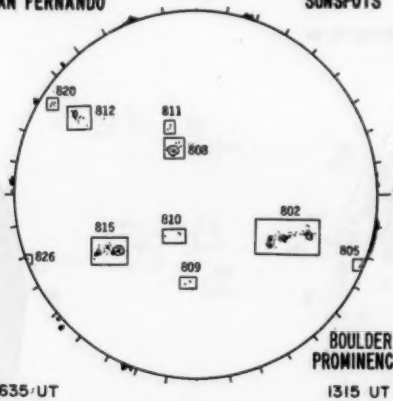
BIG BEAR Np Hα

E W

1839 UT

Sp

SAN FERNANDO Np SUNSPOTS



E W

BOULDER PROMINENCES

1635 UT 1315 UT

Sp

HALE OBSERVATORIES Np CALCIUM REPORT

E W

1920 UT

Sp

FAIR	JA
98-	0400-2.5
02-	2900-3.0
03-	0400-3.0
05-	0200-3.0
06-	0200-2.5
08-	0900-3.0
09-	0500-2.5
10-	0300-2.5
11-	0400-3.0
12-	4200-4.0
13-	0100-3.5
14-	0400-3.0
15-	3900-4.0
16-	0300-3.0
17-	0100-2.5
18-	0200-2.5
19-	0200-3.0
20-	0300-4.0
21-	0300-3.5
22-	0500-3.0

NOSC LA POSTA Np 2.0 CM

NO DATA

E SCHEDULE W

---- UT Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM

NO DATA

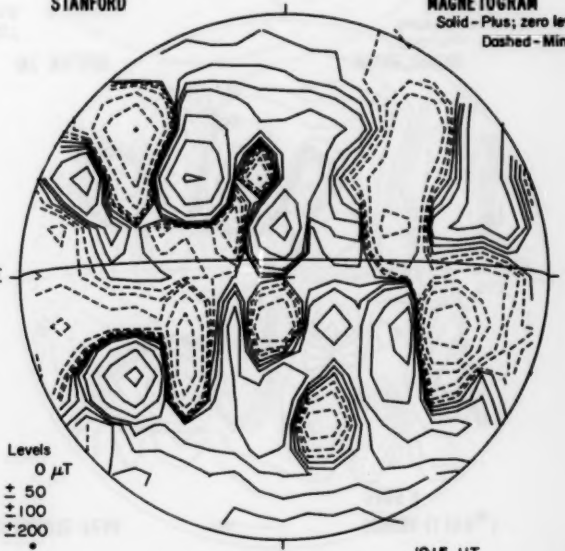
E SCHEDULE W

---- UT Sp Ant. Temp. Unit 100° K

STANFORD Np MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E W

Levels

0 μT

± 50

±100

±200

1915 UT

Sp

53

May 80

MAY 4, 1980 (P=-23.58, B_o=-3.81, L_o=110.66)

SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å

E W

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus

E W

1412 UT Sp

Sp
Np
MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus
DELTAY = 12.7
DELTAX = 9.5

E W

Levels
± 5
± 10
± 20
± 40
± 80

18.13-19.52 UT Sp

04
BOULDER Np Hα

SAN FERNANDO Np SUNSPOTS

HALE OBSERVATORIES Np CALCIUM REPORT

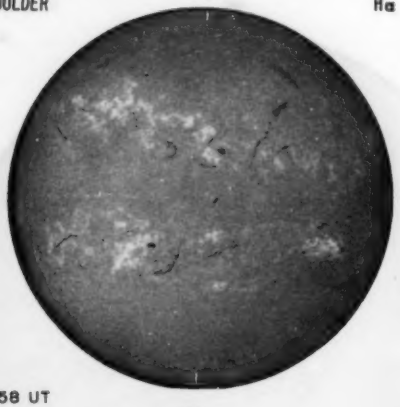
Sp

Sp

04

BOULDER

Np



E W

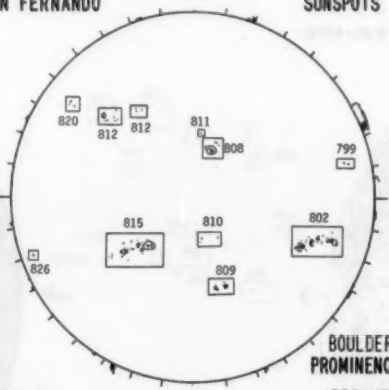
1358 UT

Sp

Hα

SAN FERNANDO

Np



E W

1545 UT

Sp

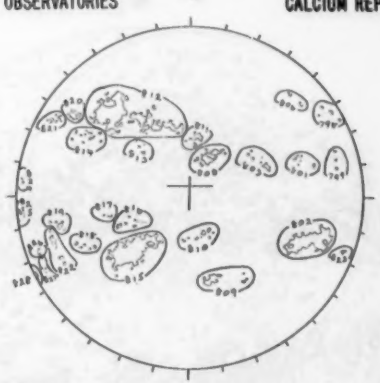
SUNSPOTS

HALE OBSERVATORIES

BOULDER PROMINENCES

1358 UT

Np



E W

1709 UT

Sp

CALCIUM REPORT

	POOR	JA
98-	0200	2.5
02-	3000	2.5
03-	0200	2.5
08-	0500	2.5
09-	0500	3.0
10-	0300	3.0
11-	0300	3.0
12-	5600	3.5
15-	3600	3.5
16-	0300	3.0
17-	0100	2.5
18-	0200	2.5
19-	0200	3.0
20-	0500	3.5
21-	0200	3.5
22-	0300	3.0
23-	0100	3.0
24-	0100	3.0
25-	0300	3.0
26-	0250	3.0
27-	0100	2.5
28-	0200	2.5

NOSC LA POSTA

Np

2.0 CM

NO DATA

E

SCHEDULE

W

---- UT

Sp

Ant. Temp. Unit 100° K

NOSC LA POSTA

Np

8.6 MM

NO DATA

E

SCHEDULE

W

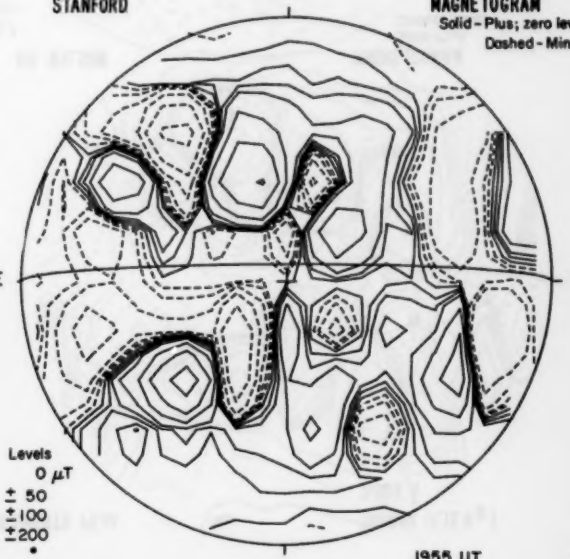
---- UT

Sp

Ant. Temp. Unit 100° K

STANFORD

Np



E W

Levels

0 μT

± 50

±100

±200

1955 UT

Sp

MAGNETOGRAM

Solid - Plus; zero level

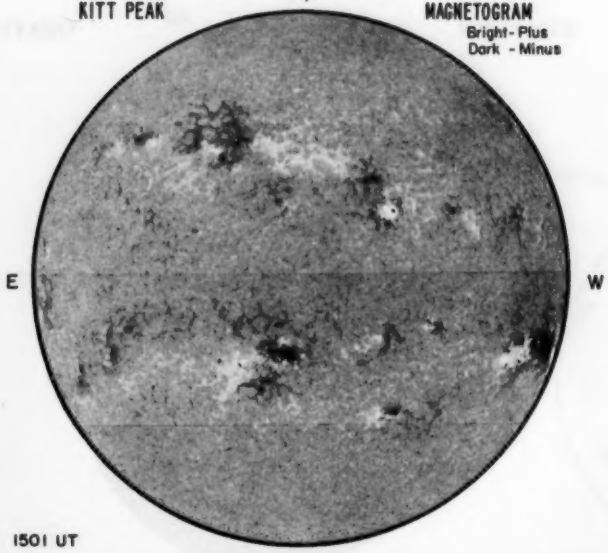
Dashed - Minus

MAY 5, 1980 (P=-23.38, B_o=-3.71, L_o=97.44)

SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å

E W

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



E W

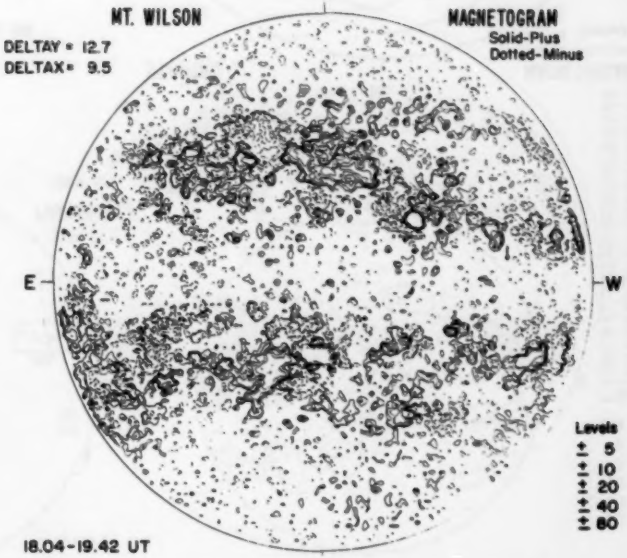
1501 UT

Sp

Sp
Np

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.7
DELTAX = 9.5



E W

Levels
± 5
± 10
± 20
± 40
± 80

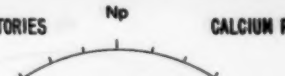
18.04-19.42 UT

Sp

05
BOULDER Np Hα

SAN FERNANDO Np

SUNSPOTS HALE OBSERVATORIES Np



CALCIUM REPORT

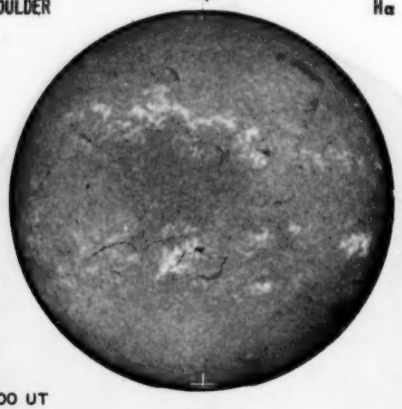
Sp

Sp

05

BOULDER

Np



E W

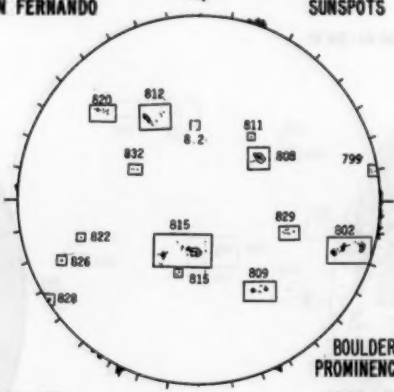
1800 UT

Sp

Hα

SAN FERNANDO

Np



E W

1715 UT

Sp

SUNSPOTS

BOULDER PROMINENCES

1800 UT

HALE OBSERVATORIES

Np

E W

1709 UT

Sp

CALCIUM REPORT

	POOR	JA
02-	3500	3.5
03-	0200	2.5
08-	0600	3.0
09-	0500	3.0
10-	0400	2.5
11-	0400	3.0
12-	5700	4.0
14-	0400	3.0
15-	3600	4.0
16-	0300	3.0
17-	0100	2.5
18-	0200	2.5
19-	0200	3.0
20-	0700	3.5
21-	0500	3.0
22-	0900	3.0
23-	0100	2.5
24-	0100	2.5
25-	1400	3.0
26-	0200	3.0
27-	0500	3.0
28-	1000	3.0
29-	0200	2.5
30-	0100	2.5
32-	0100	3.0

NOSC LA POSTA

Np

2.0 CM

NO DATA

E W

EQUIPMENT

---- UT

Sp

Ant. Temp. Unit 100° K

NOSC LA POSTA

Np

8.6 MM

NO DATA

E W

WEATHER

---- UT

Sp

Ant. Temp. Unit 100° K

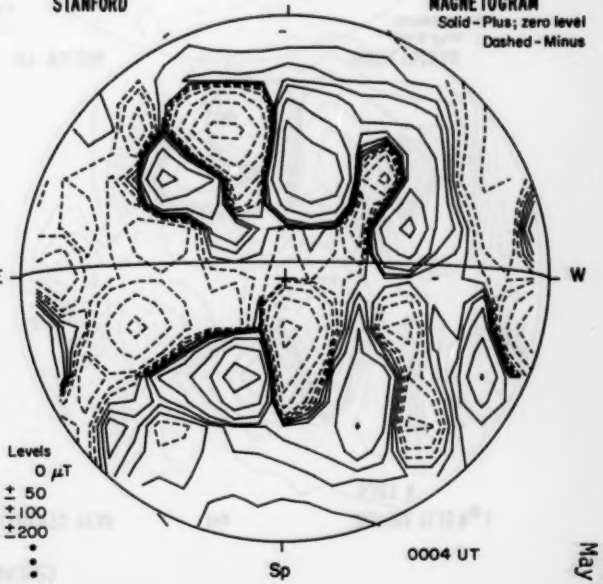
STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E W

Levels

0 μT

± 50

±100

±200

0004 UT

Sp

57

May 80

MAY 6, 1980 (P = -23.17, B_o = -3.60, L_o = 84.22)

SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å

E W

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus

E W

1322 UT Sp

Sp
Np
MT. WILSON MAGNETOGRAM
Solid - Plus
Dotted - Minus
DELTAY = 12.7
DELTAX = 9.5

E W

Levels
± 5
± 10
± 20
± 40
± 80

18.52-19.90 UT Sp

06
BOULDER Np Hα SAN FERNANDO Np SUNSPOTS | HALE OBSERVATORIES Np CALCIUM REPORT

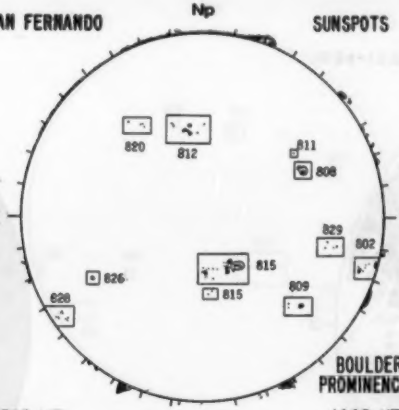
06

BOULDER

1440 UT

Hα

SAN FERNANDO

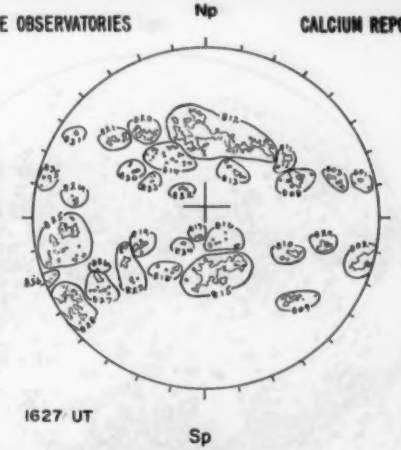


1745 UT

SUNSPOTS | HALE OBSERVATORIES

BOULDER PROMINENCES

1440 UT



1627 UT

CALCIUM REPORT

FAIR	JA
02- 2600-3.0	
03- 0400-2.5	
08- 0800-3.5	
09- 0500-3.0	
10- 0400-3.0	
11- 0500-3.5	
12- 5800-4.0	
13- 0300-3.0	
14- 0800-3.0	
15- 3500-4.5	
17- 0100-2.5	
19- 0400-3.0	
20- 0700-3.5	
21- 0500-3.0	
22- 0700-3.0	
24- 0200-3.0	
25- 2200-3.0	
26- 0100-3.0	
27- 0500-2.5	
28- 3200-3.0	
29- 0600-3.0	
30- 0200-2.5	
31- 0100-2.5	
32- 0100-2.5	
33- 0200-2.5	
34- 0100-3.0	

NOSC LA POSTA

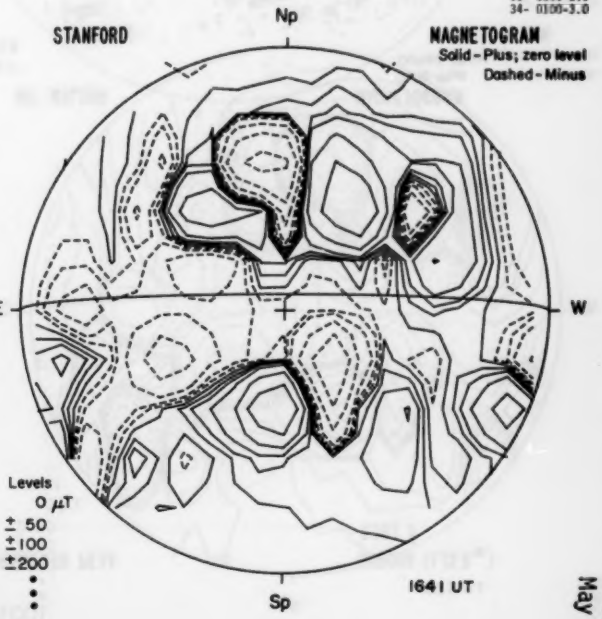
NOSC LA POSTA

STANFORD

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



1641 UT

MAY 7, 1980 (P=-22.95, B_o=-3.50, L_o=71.00)

SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å

E W

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus

E W

1602 UT Sp

Sp
Np
MT. WILSON MAGNETOGRAM
Solid - Plus
Dotted - Minus
DELTAY = 12.7
DELTAX = 9.5

E W

Levels
± 5
± 10
± 20
± 40
± 80

16.34 - 17.72 UT Sp

07

Np Hα BOULDER Np SUNSPOTS HALE OBSERVATORIES Np CALCIUM REPORT

07

Np

Hα

NO DATA

E W

Sp

Np

BOULDER

SUNSPOTS

820 812 808 829 815 839 826 809 828

E W

Sp

1530 UT

BOULDER PROMINENCES

NO DATA

Np

HALE OBSERVATORIES

CALCIUM REPORT

E W

Sp

1901 UT

	FAIR	JA
02-	0900	3.0
03-	0200	2.5
08-	0500	3.0
09-	0800	3.0
10-	0200	2.5
11-	0500	3.5
12-	5800	3.5
14-	0400	2.5
15-	3500	4.0
16-	0200	2.5
19-	0400	3.0
20-	0800	3.5
21-	0300	3.0
22-	0600	3.0
25-	2100	3.0
26-	0100	3.0
27-	0600	3.0
28-	4400	4.0
29-	0500	3.0
30-	0200	2.5
34-	0100	2.5
35-	0300	2.5
36-	0500	3.0
37-	0400	3.0
38-	0300	3.0
39-	1300	4.0

NOSC LA POSTA

Np

2.0 CM

E W

Sp

1826 UT

Ant. Temp. Unit 100° K

NOSC LA POSTA

Np

8.6 MM

E W

Sp

1546 UT

Ant. Temp. Unit 100° K

STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

E W

Sp

1637 UT

Levels

0 μT

± 50

±100

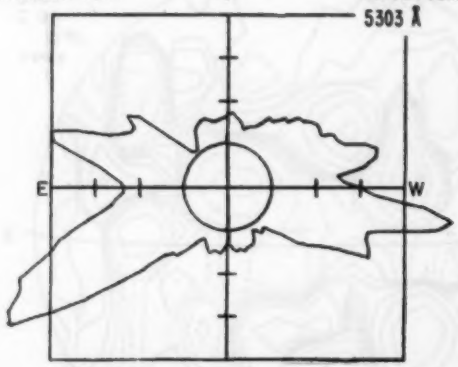
±200

61

May 83

MAY 8, 1980 (P=-22.72, B_o=-3.39, L_o=57.78)

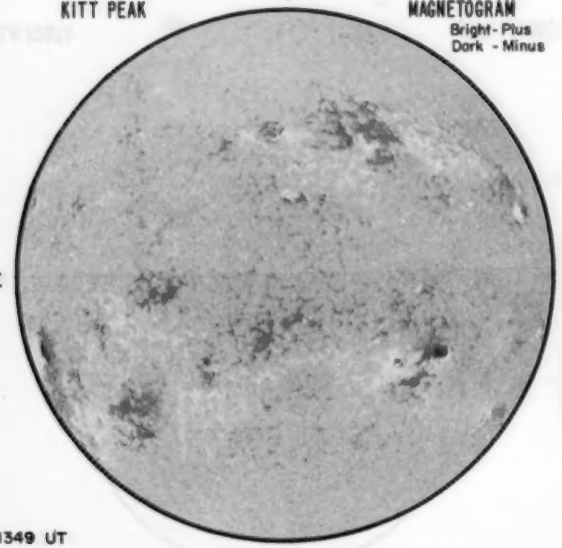
SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å



1402 UT

Sp

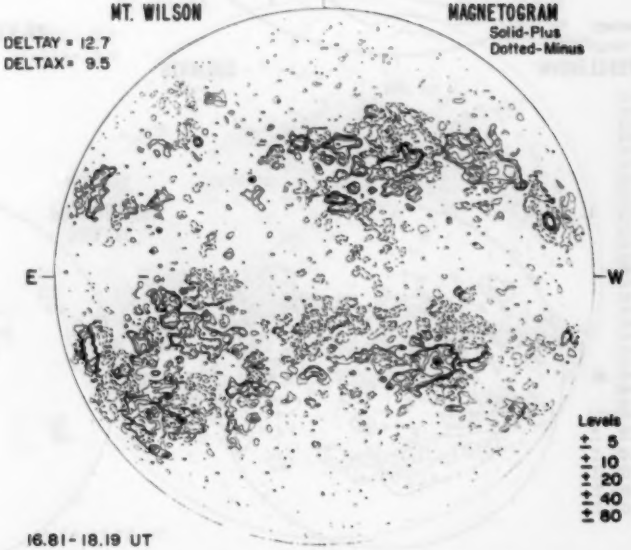
KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



1349 UT

Sp

MT. WILSON Np MAGNETOGRAM
Solid-Plus
Dotted-Minus
DELTAY = 12.7
DELTAX = 9.5



16.81 - 18.19 UT

Sp

08 Np Hα SAN FERNANDO Np SUNSPOTS | HALE OBSERVATORIES Np CALCIUM REPORT

08

Np

Hα

SAN FERNANDO

E NO DATA W

Sp

Np

SUNSPOTS

E NO DATA W

Sp

BOULDER PROMINENCES

Np

HALE OBSERVATORIES

CALCIUM REPORT

E W

1725 UT

Sp

GOOD	JA
08- 0400-2.5	
09- 0400-3.0	
11- 0300-3.5	
12- 4400-3.5	
14- 0400-2.5	
15- 2600-4.0	
16- 0300-2.5	
19- 0300-3.5	
20- 1000-3.5	
21- 0300-3.5	
22- 0700-3.0	
25- 1400-3.0	
27- 0500-3.0	
28- 4800-3.5	
29- 0300-2.5	
30- 0400-3.5	
35- 0200-2.5	
36- 0900-3.0	
37- 1000-3.0	
38- 0500-3.0	
39- 1800-4.0	
41- 0200-2.5	

NOSC LA POSTA

Np 2.0 CM

E W

1448 UT Sp Ant. Temp. Unit 100° K

NOSC LA POSTA

Np 8.6 MM

E W

1516 UT Sp Ant. Temp. Unit 100° K

STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

E W

Levels

0 μT

± 50

±100

±200

•

•

•

1707 UT

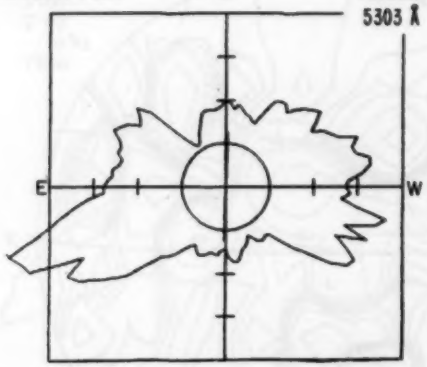
Sp

63

May 80

MAY 9, 1980 (P=-22.49, B_o=-3.28, L_o=44.56)

SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å

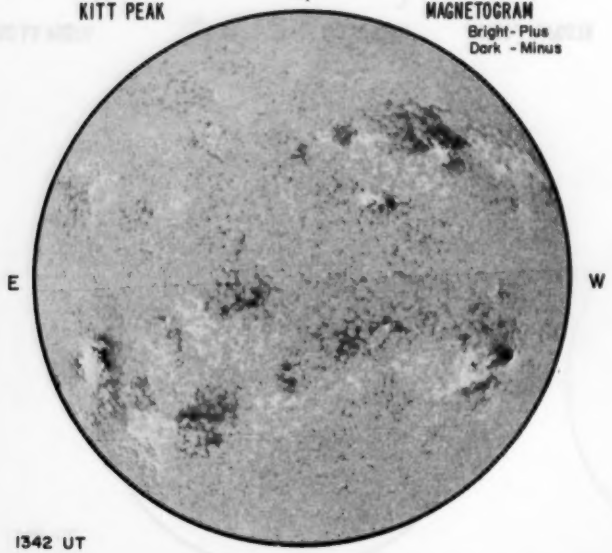


1427 UT

Sp

Np

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



1342 UT

Sp

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY =
DELTAX =

E NO DATA 9-17 MAY W

Levels
± 5
± 10
± 20
± 40
± 80

Sp

09

BIG BEAR Np Hα

BOULDER Np

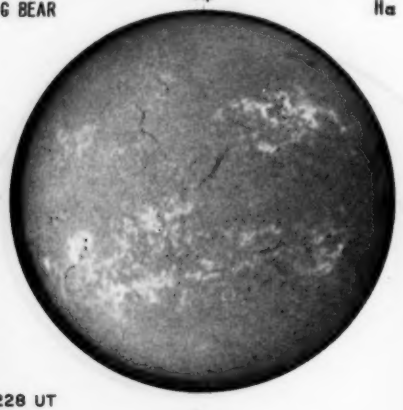
SUNSPOTS HALE OBSERVATORIES Np CALCIUM REPORT

Sp

Sp

09

BIG BEAR Np Hα

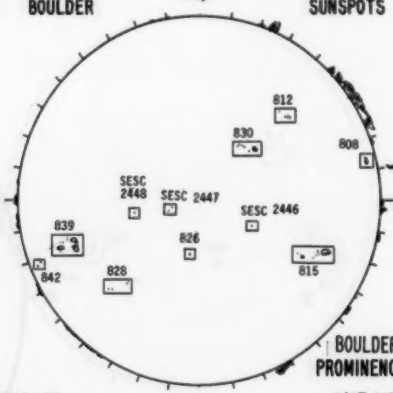


E W

2228 UT

Sp

BOULDER Np



E W E

1422 UT

Sp

SUNSPOTS HALE OBSERVATORIES Np

BOULDER PROMINENCES

1417 UT

Sp

CALCIUM REPORT

NO DATA 9-15 MAY

E W

Sp

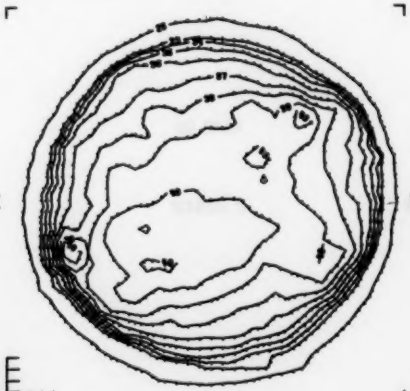
NOSC LA POSTA Np 2.0 CM

E W

1531 UT

Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM



E W

1559 UT

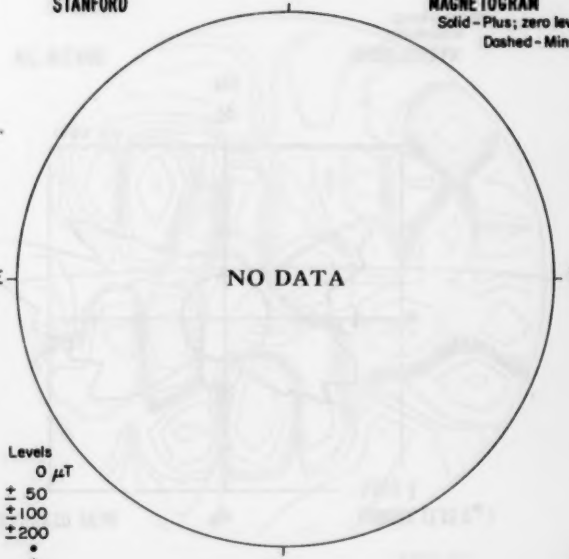
Sp Ant. Temp. Unit 100° K

STANFORD Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E W

Levels

0 μT

± 50

±100

±200

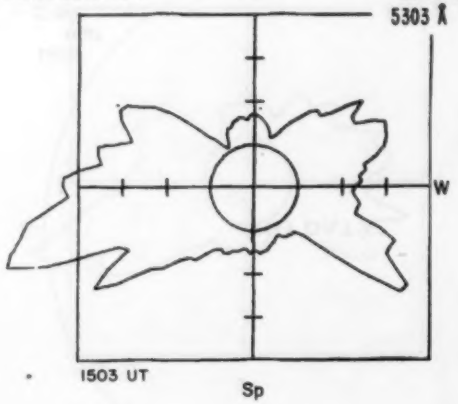
Sp

65

May 80

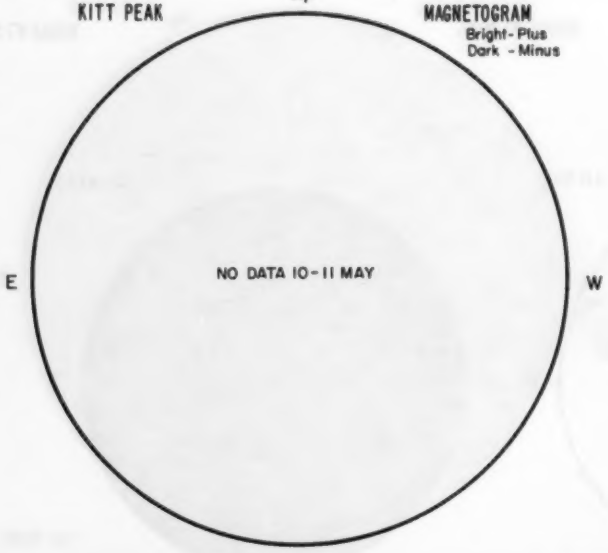
MAY 10, 1980 (P = -22.25, B_o = -3.17, L_o = 31.34)

SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å



Np

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus
DELTAY =
DELTAX =

Levels
± 5
± 10
± 20
± 40
± 60

10
BIG BEAR Np Hα

SAN FERNANDO Np SUNSPOTS HALE OBSERVATORIES Np CALCIUM REPORT

Sp

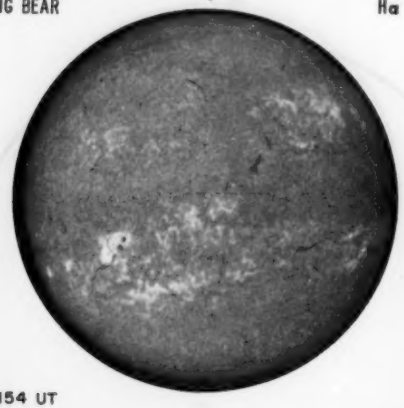
Sp

10

BIG BEAR

Np

Hα



E

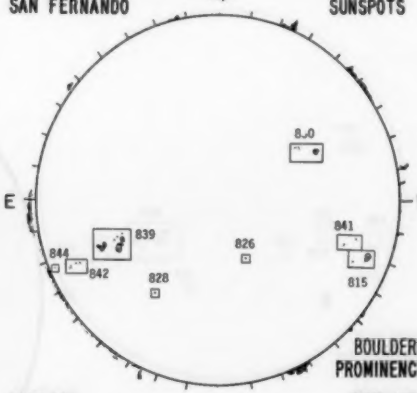
W

2154 UT

Sp

SAN FERNANDO

Np



E

W

1610 UT

Sp

SUNSPOTS

HALE OBSERVATORIES

BOULDER PROMINENCES

1252 UT

Sp

Np

CALCIUM REPORT

E

W

Sp

NOSC LA POSTA

Np

2.0 CM

NO DATA

E

SCHEDULE

W

---- UT

Sp

Ant. Temp. Unit 100° K

NOSC LA POSTA

Np

8.6 MM

NO DATA

E

SCHEDULE

W

---- UT

Sp

Ant. Temp. Unit 100° K

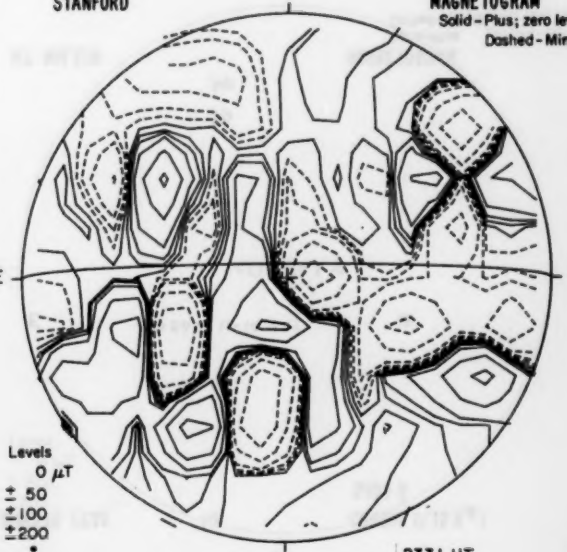
STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



Sp

2331 UT

67

May 80

MAY 11, 1980 (P_o=-22.01, B_o=-3.06, L_o=18.11)

SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å

E NO DATA 11-14 MAY W

Sp
Np

KITT PEAK Np MAGNETOGRAM
Bright-Plus
Dark - Minus

E W

Sp

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY =
DELTAX=

E W

Levels
± 5
± 10
± 20
± 40
± 80

Sp

11

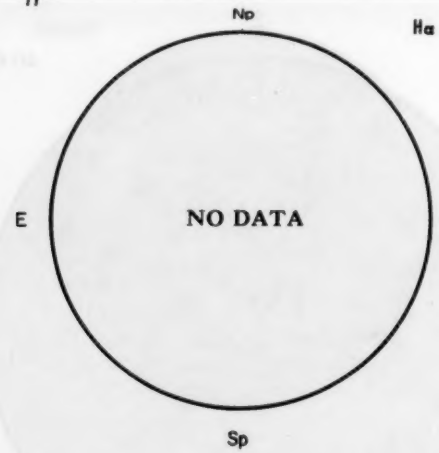
Np Hα SAN FERNANDO Np SUNSPOTS HALE OBSERVATORIES Np CALCIUM REPORT

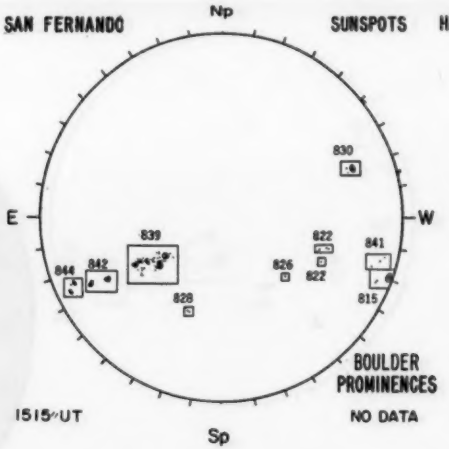
Np

Sp

Hα

SAN FERNANDO





1515 UT

SUNSPOTS

HALE OBSERVATORIES

BOULDER

PROMINENCES

NO DATA

Np

E W

Sp

CALCIUM REPORT

Np

E W

Sp

NOSC LA POSTA

Np

2.0 CM

---- UT

Sp

Ant. Temp. Unit 100° K

NOSC LA POSTA

Np

8.6 MM

---- UT

Sp

Ant. Temp. Unit 100° K

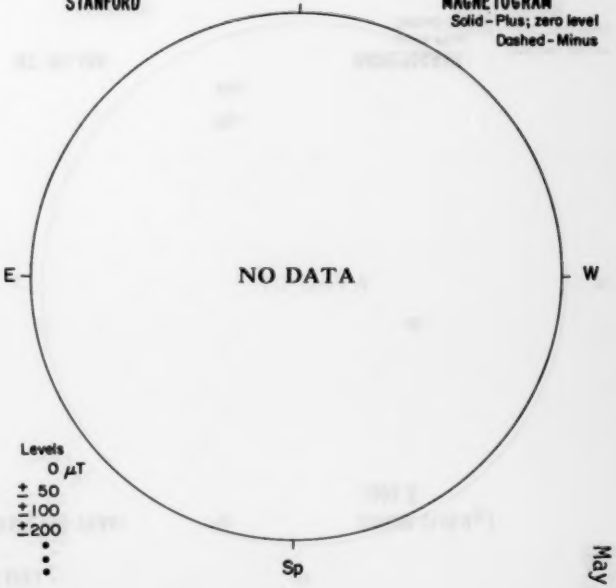
STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



Levels

0 μT

± 50

±100

±200

•

•

•

69

May 80

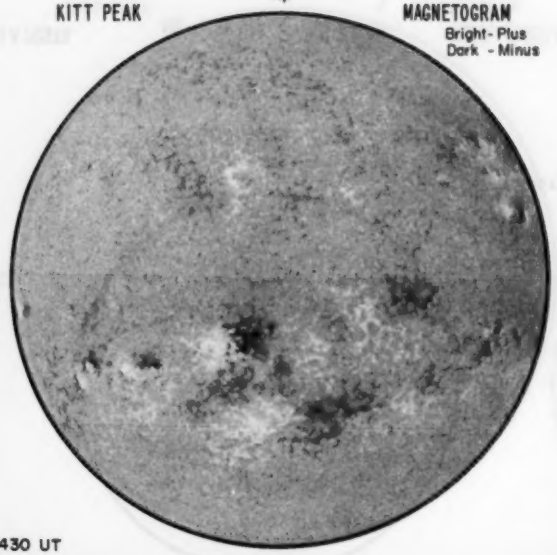
MAY 12, 1980 (P=-21.76, B_o=-2.95, L_o=4.89)

SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å

E W

Sp
Np

KITT PEAK Np MAGNETOGRAM
Bright- Plus
Dark - Minus



E W

1430 UT

Sp

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY =
DELTAX =

E W

Levels
± 5
± 10
± 20
± 40
± 80

Sp

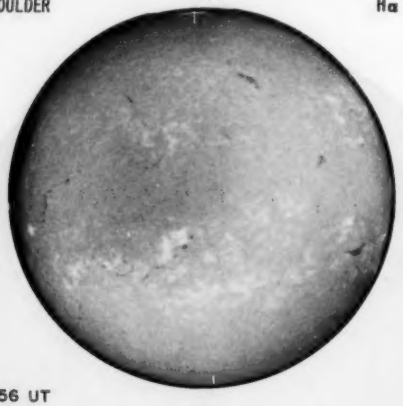
12

BOULDER Np Hα

SAN FERNANDO Np

SUNSPOTS HALE OBSERVATORIES Np CALCIUM REPORT

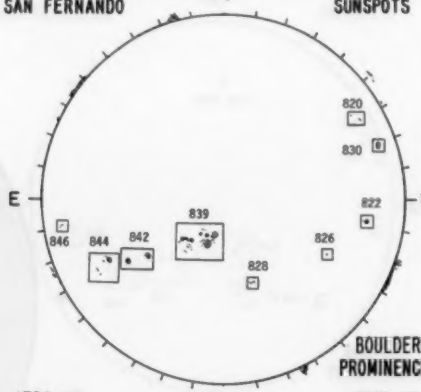
BOULDER Np Hα



E W

1556 UT Sp

SAN FERNANDO Np



E W

1750 UT Sp

SUNSPOTS HALE OBSERVATORIES Np

BOULDER PROMINENCES

1556 UT Sp

CALCIUM REPORT

E W

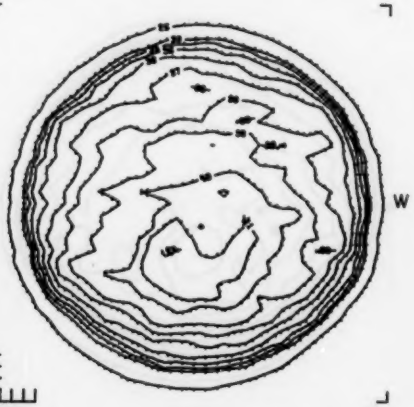
Sp

NOSC LA POSTA Np 2.0 CM

E W

1833 UT Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM



E W

1907 UT Sp Ant. Temp. Unit 100° K

STANFORD Np

MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus

NO DATA

E W

Levels
0 μT
± 50
±100
±200

Sp

MAY 13, 1980 (P=-21.50, B_o=-2.84, L_o=351.67)

SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å

E W

Sp
Np

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY =
DELTAX =

E W

Levels
±1 5
±1±1 10
±1±1±1 20
±1±1±1±1 40
±1±1±1±1±1 80

1507 UT

Sp

Sp

13

BIG BEAR Np Hα SAN FERNANDO Np SUNSPOTS HALE OBSERVATORIES Np CALCIUM REPORT

Sp

Sp

13

BIG BEAR

Np

Hα

E W

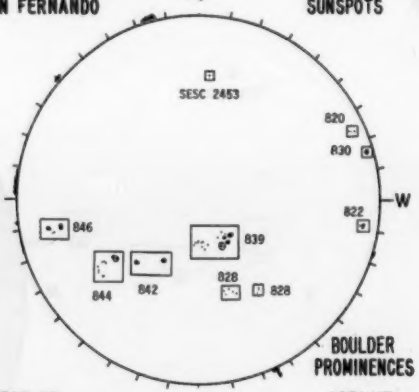
2352 UT

Sp

SAN FERNANDO

Np

SUNSPOTS



E W

1745 UT

Sp

HALE OBSERVATORIES

Np

BOULDER PROMINENCES

E W

1451 UT

Sp

CALCIUM REPORT

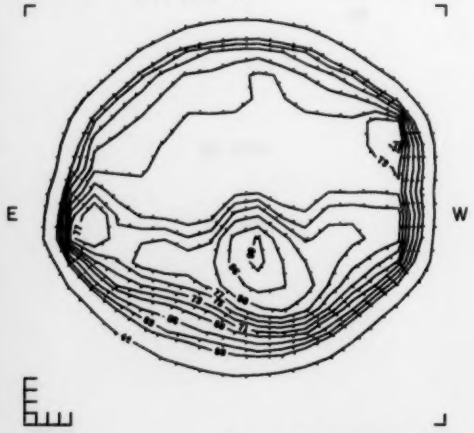
E W

Sp

NOSC LA POSTA

Np

2.0 CM



E W

1429 UT

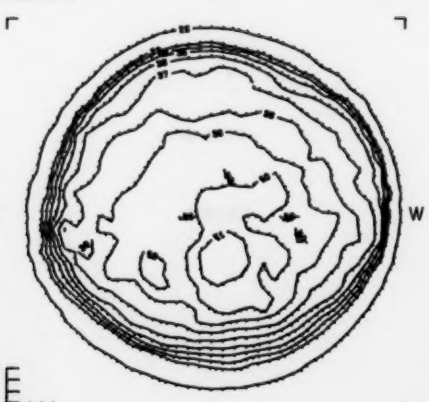
Sp

Ant. Temp. Unit 100° K

NOSC LA POSTA

Np

8.6 MM



E W

1501 UT

Sp

Ant. Temp. Unit 100° K

STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

E

NO DATA

W

Levels

0 μT

± 50

±100

±200

Sp

73

May 80

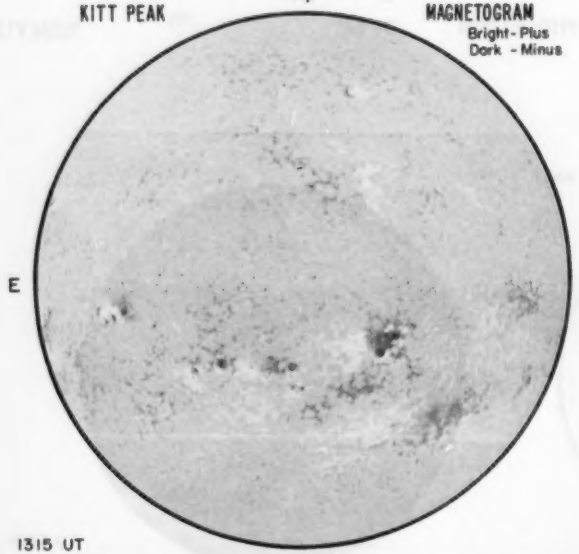
MAY 14, 1980 (P = -21.23, B_o = -2.73, L_o = 338.44)

SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å

E W

Sp
Np

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



E W

1315 UT

Sp

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY =
DELTAX =

E W

Levels
± 5
± 10
± 20
± 40
± 80

Sp

14

BOULDER Np Hα

SAN FERNANDO Np

SUNSPOTS HALE OBSERVATORIES Np CALCIUM REPORT

Sp

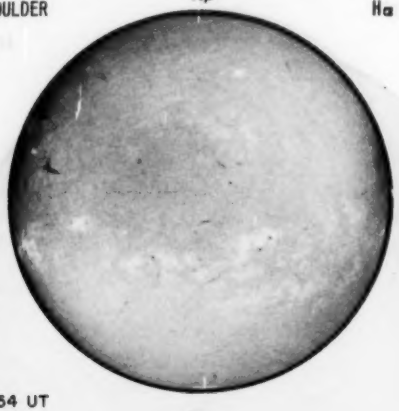
Sp

14

BOULDER

Np

Hα



E

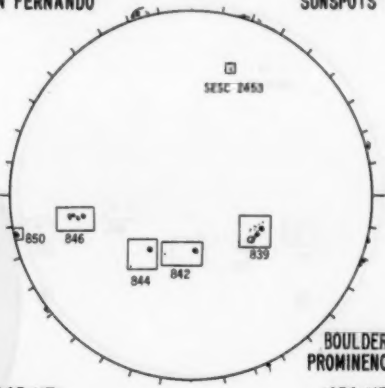
W

1454 UT

Sp

SAN FERNANDO

Np



E

W

1845 UT

Sp

SUNSPOTS

HALE OBSERVATORIES

Np

BOULDER PROMINENCES

E

W

1454 UT

Sp

CALCIUM REPORT

NOSC LA POSTA

Np

2.0 CM

NO DATA

E

WEATHER

W

---- UT

Sp

Ant. Temp. Unit 100° K

NOSC LA POSTA

Np

8.6 MM

NO DATA

E

WEATHER

W

---- UT

Sp

Ant. Temp. Unit 100° K

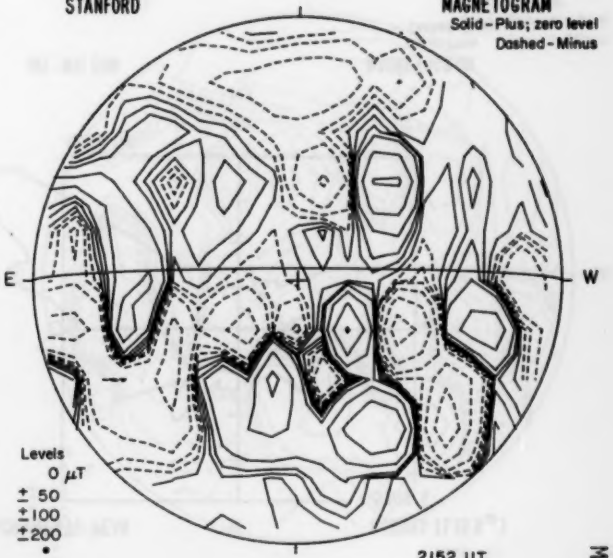
STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E

W

Levels

0 μT

± 50

±100

±200

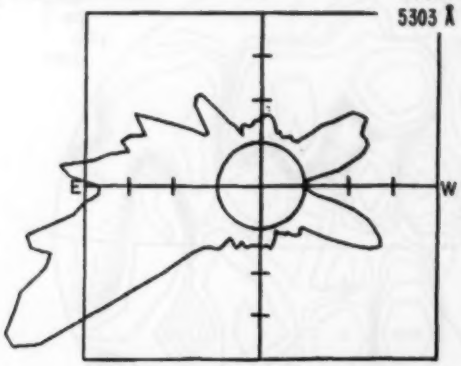
Sp

2152 UT

75 May 80

MAY 15, 1980 (P=-20.96, B_o=-2.61, L_o=325.22)

SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å

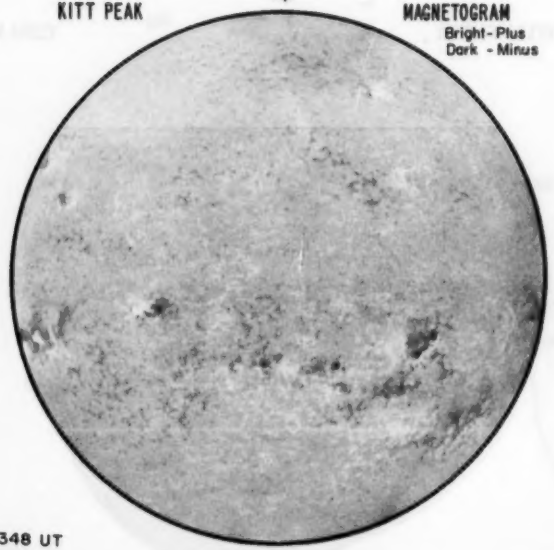


1334 UT

Sp

Np

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



1348 UT

Sp

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY =
DELTAX =

E W

Sp

Levels
± 5
± 10
± 20
± 40
± 80

15

Np Hα SAN FERNANDO Np SUNSPOTS HALE OBSERVATORIES Np CALCIUM REPORT

15

Np

Hα

NO DATA

E W

Sp

SAN FERNANDO

Np

SESC 2453

850 846 844 842 839

E W

1825 UT

Sp

SUNSPOTS

HALE OBSERVATORIES

Np

BOULDER PROMINENCES

NO DATA

E W

Sp

CALCIUM REPORT

E W

Sp

NOSC LA POSTA

Np

2.0 CM

E W

1913 UT

Sp

Ant. Temp. Unit 100° K

NOSC LA POSTA

Np

8.6 MM

NO DATA

WEATHER

E W

---- UT

Sp

Ant. Temp. Unit 100° K

STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

E W

Levels

0 μT

± 50

±100

±200

•

•

•

1755 UT

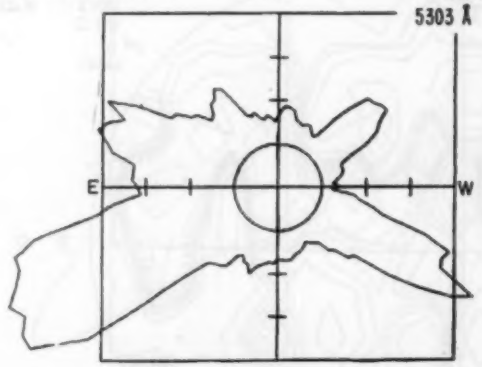
Sp

77

May 80

MAY 16, 1980 (P=-20.68, B_o=-2.50, L_o=311.99)

SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å

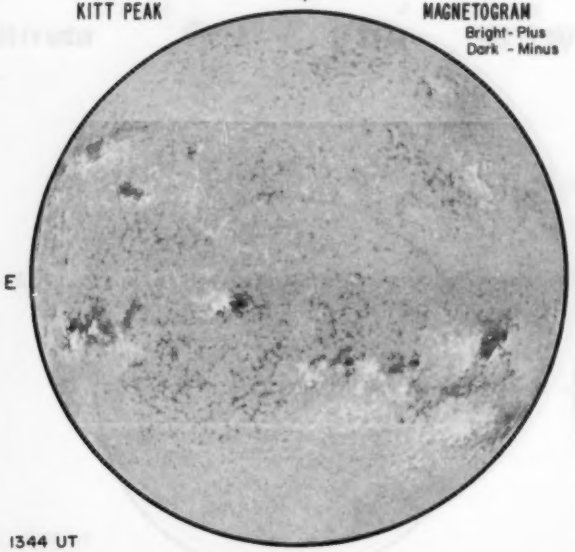


1427 UT

Sp

Np

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



1344 UT

Sp

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY =
DELTAX =

E W

Sp

Levels
± 5
± 10
± 20
± 40
± 60

16

BIG BEAR Np Hα SAN FERNANDO Np SUNSPOTS HALE OBSERVATORIES Np CALCIUM REPORT

Sp

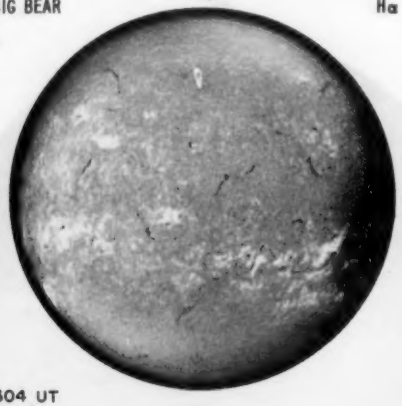
Sp

16

BIG BEAR

Np

Hα



E

W

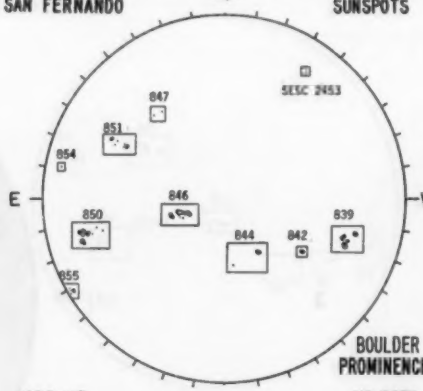
2304 UT

Sp

SAN FERNANDO

Np

SUNSPOTS



E

W

1630 UT

Sp

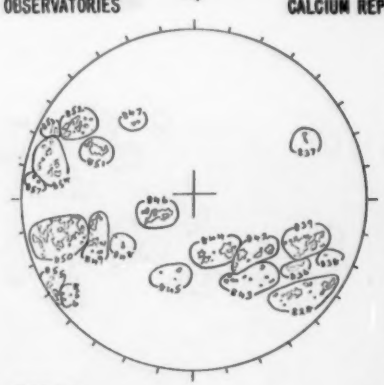
BOULDER PROMINENCES

NO DATA

HALE OBSERVATORIES

Np

CALCIUM REPORT



E

W

1827 UT

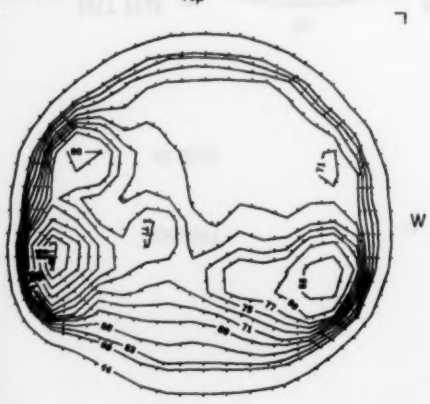
Sp

FAIR	JA
28- 1400	2.5
36- 0300	2.5
42- 0800	2.5
44- 0700	2.5
46- 0700	3.0
47- 0100	2.5
49- 0700	3.0
50- 4000	3.5
51- 0500	3.5
52- 0600	3.0
53- 0200	3.0
54- 0900	2.5
55- 1300	3.5
56- 0200	3.0
57- 0100	2.5

NOSC LA POSTA

Np

2.0 CM



E

W

1457 UT

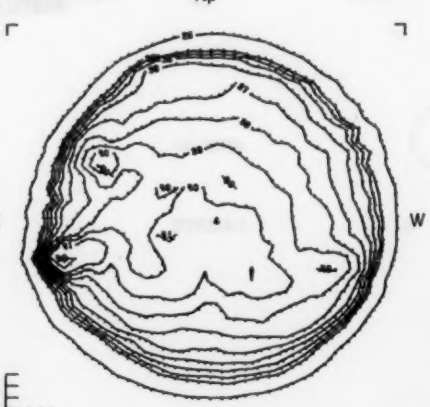
Sp

Ant. Temp. Unit 100° K

NOSC LA POSTA

Np

8.6 MM



E

W

1545 UT

Sp

Ant. Temp. Unit 100° K

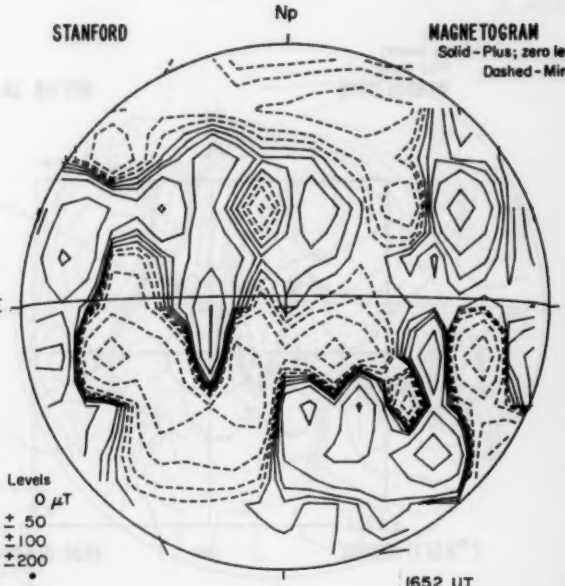
STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E

W

Levels

0 μT

± 50

±100

±200

1652 UT

Sp

79

May 80

MAY 17, 1980 (P=-20.40, B_o=-2.38, L_o=298.76)

SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å

E W

1441 UT

Sp

Np

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus

E W

1738 UT

Sp

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY =
DELTAX =

E W

Levels
± 5
± 10
± 20
± 40
± 60

Sp

17

BIG BEAR Np Hα SAN FERNANDO Np SUNSPOTS HALE OBSERVATORIES Np CALCIUM REPORT

Sp

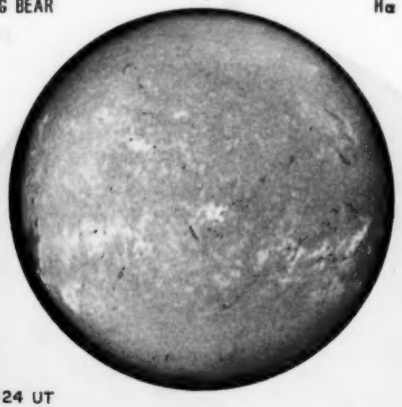
Sp

17

BIG BEAR

Np

Hα



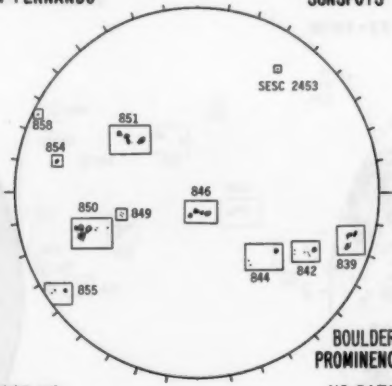
E W

2124 UT

Sp

SAN FERNANDO

Np



E W

1735 UT

Sp

SUNSPOTS

BOULDER PROMINENCES

NO DATA

HALE OBSERVATORIES

Np

E W

1739 UT

Sp

CALCIUM REPORT

GOOD	JA
36-	0300-2.5
37-	0200-2.5
39-	1300-3.0
42-	1400-3.0
43-	0300-3.0
44-	1000-3.0
45-	0200-2.5
46-	1000-3.5
47-	0200-3.0
48-	0300-2.5
49-	0500-3.0
50-	5000-4.0
51-	1200-3.0
52-	1200-3.5
53-	0400-3.0
54-	1100-3.5
55-	2600-3.0
56-	0300-3.0
57-	0200-2.5

NOSC LA POSTA

Np

2.0 CM

NO DATA

E SCHEDULE W

---- UT

Sp

Ant. Temp. Unit 100° K

NOSC LA POSTA

Np

8.6 MM

NO DATA

E SCHEDULE W

---- UT

Sp

Ant. Temp. Unit 100° K

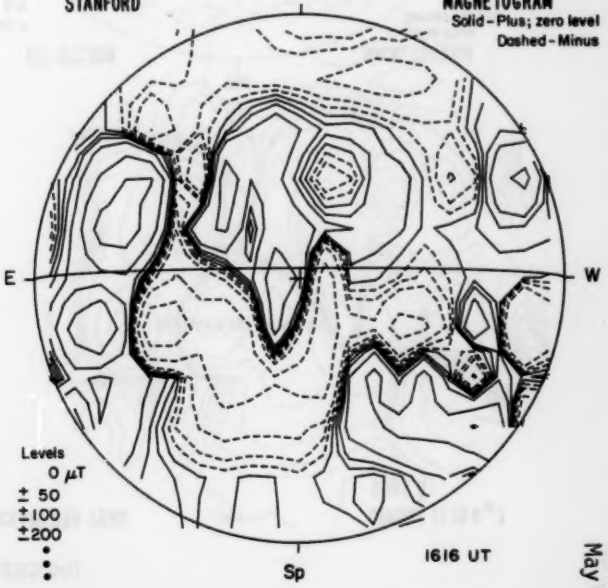
STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E W

Levels

0 μT

± 50

±100

±200

1616 UT

Sp

81

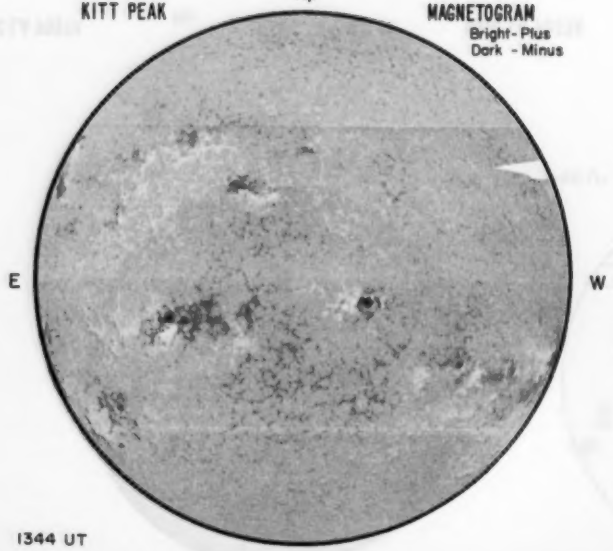
May 80

MAY 18, 1980 (P = -20.10, B_o = -2.27, L_o = 285.54)

SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å

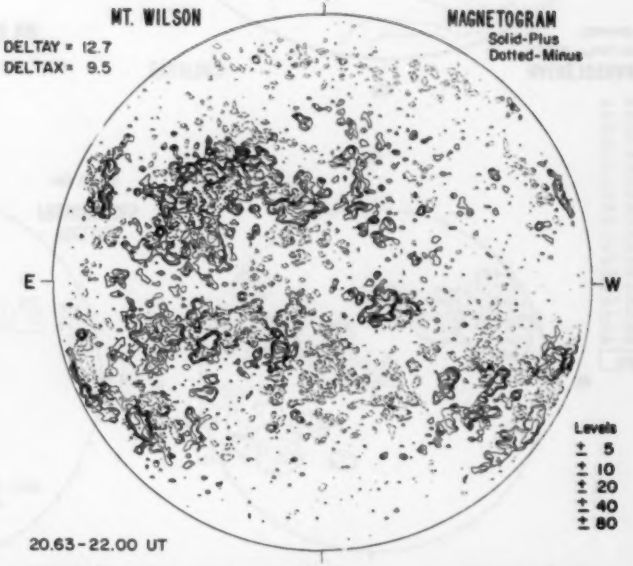
E NO DATA 18 - 19 MAY W

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



E W
1344 UT
Sp

1455 UT
Sp Np
MT. WILSON MAGNETOGRAM
Solid - Plus
Dotted - Minus
DELTAY = 12.7
DELTAX = 9.5



E W
Levels
± 5
± 10
± 20
± 40
± 80
20.63 - 22.00 UT
Sp

18
BIG BEAR Np Hα SAN FERNANDO Np SUNSPOTS HALE OBSERVATORIES Np CALCIUM REPORT

Sp

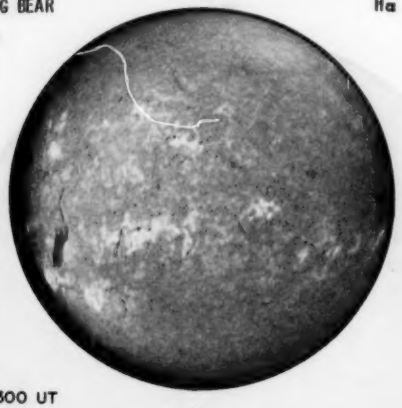
Sp

IB

BIG BEAR

Np

Hα



E W

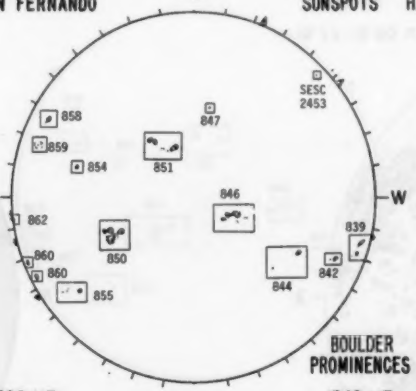
2300 UT

Sp

SAN FERNANDO

Np

SUNSPOTS



E W

1520 UT

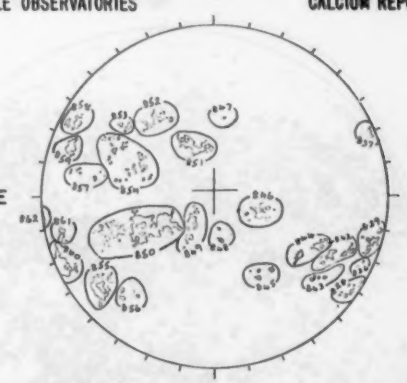
Sp

BOULDER PROMINENCES

1348 UT

HALE OBSERVATORIES

Np



E W

2105 UT

Sp

CALCIUM REPORT

FAIR	JA
36-	0100-2.5
39-	1000-3.0
42-	0800-3.0
43-	0200-3.0
44-	0600-2.5
46-	0700-2.5
49-	0700-3.0
50-	5300-3.5
51-	1400-2.5
52-	0900-2.5
53-	0200-3.0
54-	0900-3.0
55-	2500-4.0
56-	0300-2.5
58-	0700-3.0
59-	0800-3.5
60-	2600-3.5
61-	0400-2.5
62-	0200-3.5

NOSC LA POSTA

Np

2.0 CM

NO DATA

E SCHEDULE W

---- UT

Sp

Ant. Temp. Unit 100° K

NOSC LA POSTA

Np

8.6 MM

NO DATA

E SCHEDULE W

---- UT

Sp

Ant. Temp. Unit 100° K

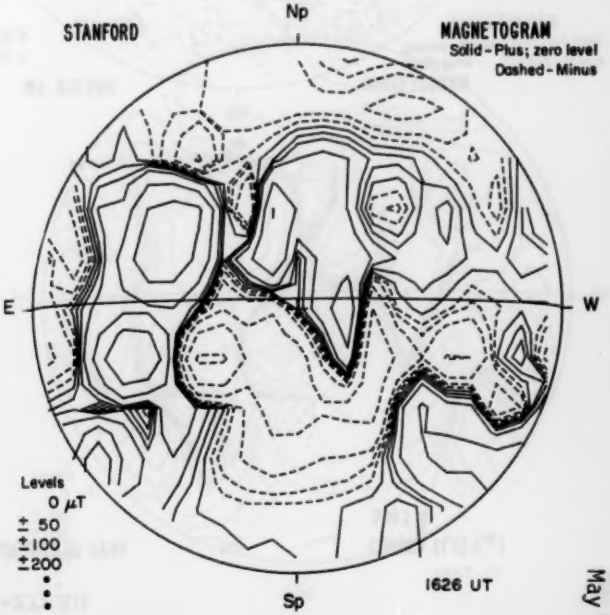
STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E W

Levels

0 μT

± 50

±100

±200

1626 UT

Sp

83 May 80

MAY 19, 1980 (P = 19.81, B_o = -2.15, L_o = 272.31)

SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å

E W

1447 UT

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus

E W

1512 UT

Sp

Sp Np

MT. WILSON MAGNETOGRAM
Solid - Plus
Dotted - Minus

DELTAY = 12.7
DELTAX = 9.5

E W

Levels
±1 5
±1±1 10
±1±1±1 20
±1±1±1±1 40
±1±1±1±1±1 80

16.73 - 18.30 UT

Sp

19

BOULDER Np Hα

SAN FERNANDO Np SUNSPOTS

HALE OBSERVATORIES Np CALCIUM REPORT

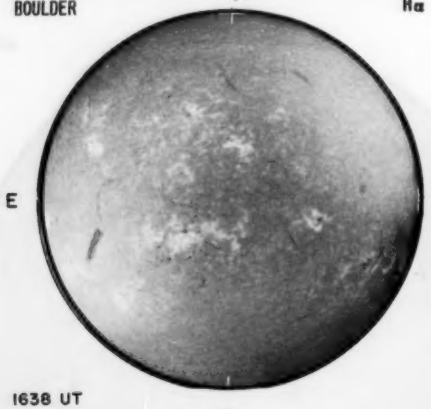
Sp

Sp

19

BOULDER

Np



E

W

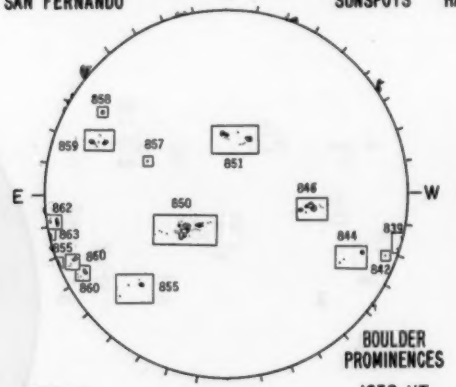
1638 UT

Sp

Hα

SAN FERNANDO

Np



E

W

1735 UT

Sp

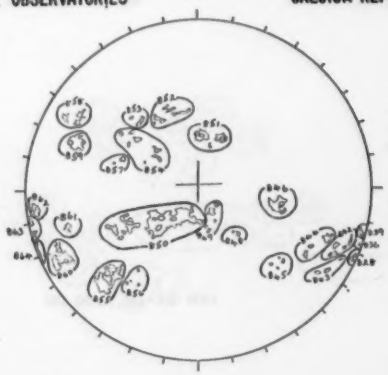
SUNSPOTS

BOULDER PROMINENCES

1638 UT

HALE OBSERVATORIES

Np



E

W

1744 UT

Sp

CALCIUM REPORT

NOSC LA POSTA

Np

2.0 CM

NO DATA

EQUIPMENT

E

W

---- UT

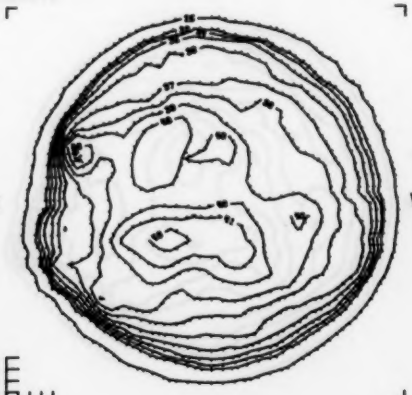
Sp

Ant. Temp. Unit 100° K

NOSC LA POSTA

Np

8.6 MM



E

W

1654 UT

Sp

Ant. Temp. Unit 100° K

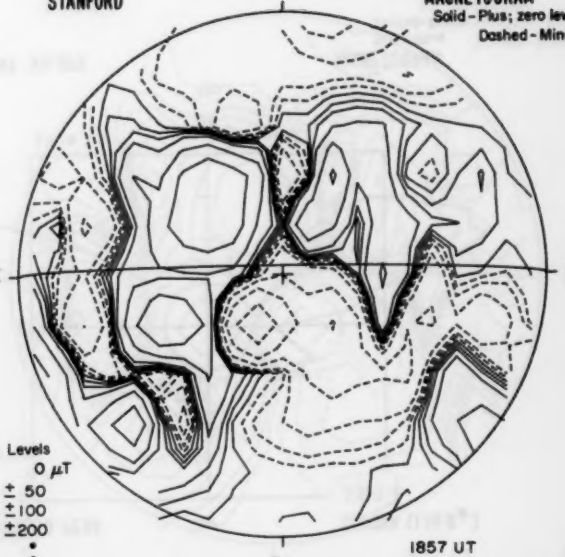
STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E

W

Levels

0 μT

± 50

±100

±200

1857 UT

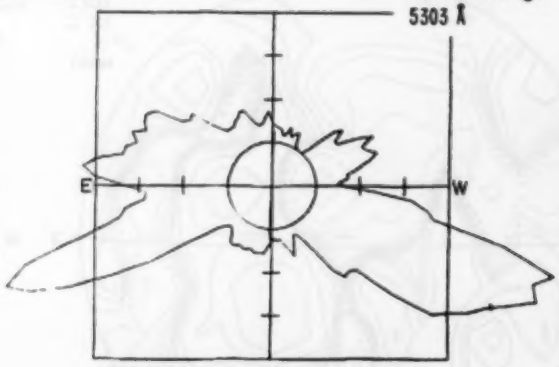
Sp

85

May 80

MAY 20, 1980 (P=-19.50, B_o=-2.04, L_o=259.08)

SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å

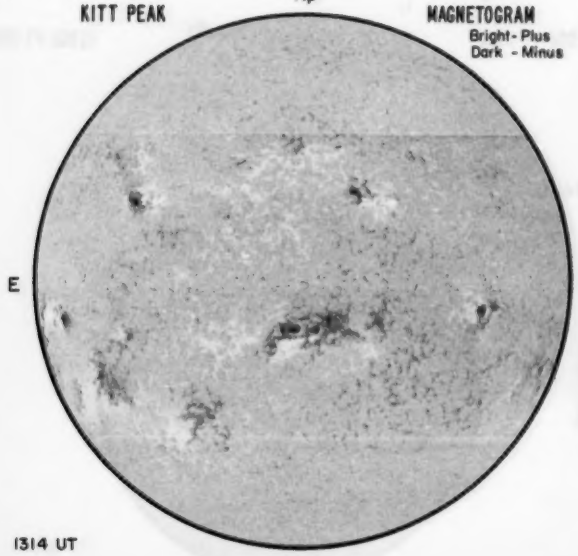


2326 UT

Sp

Np

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



1314 UT

Sp

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY =
DELTAX =

E NO DATA 20-28 MAY W

Levels
± 5
± 10
± 20
± 40
± 80

Sp

20

BOULDER Np Hα

BOULDER Np SUNSPOTS

HALE OBSERVATORIES Np CALCIUM REPORT

Sp

Sp

20

BOULDER

Np

Hα

E

W

1451 UT

Sp

BOULDER

Np

SUNSPOTS

858
859
857
851
BOUL 354
862
866
860
864
850
850
846
842
844
855

E

W

BOULDER PROMINENCES

1405 UT

Sp

1451 UT

HALE OBSERVATORIES

Np

CALCIUM REPORT

E

W

2156 UT

Sp

	FAIR	JA
42-	0200-2.5	
43-	0300-2.5	
44-	0400-2.5	
45-	0200-2.5	
46-	1100-3.0	
48-	0300-2.5	
49-	0700-3.0	
50-	5600-3.5	
51-	1100-2.5	
52-	1400-3.0	
53-	0200-3.0	
54-	1400-3.0	
55-	3200-4.0	
56-	0300-3.0	
57-	0500-3.0	
58-	1100-3.5	
59-	1700-3.5	
60-	3700-4.0	
61-	0400-3.5	
62-	1200-3.5	
63-	1600-3.5	
64-	1400-4.0	

NOSC LA POSTA

Np

2.0 CM

E

W

1419 UT

Sp

Ant. Temp. Unit 100° K

NOSC LA POSTA

Np

8.6 MM

E

W

1518 UT

Sp

Ant. Temp. Unit 100° K

STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

E

W

Levels

0 μT

± 50

±100

±200

1632 UT

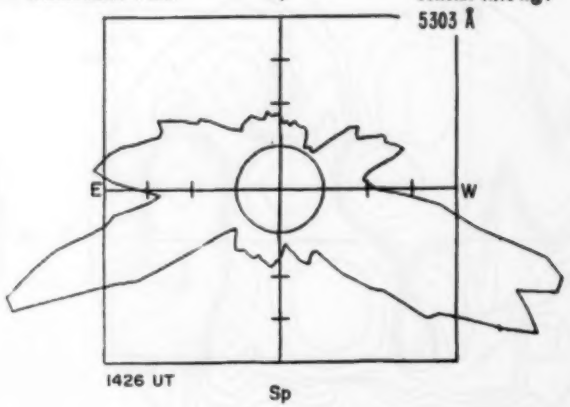
Sp

87

May 80

MAY 21, 1980 (P = -19.19, B_o = -1.92, L_o = 245.85)

SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å

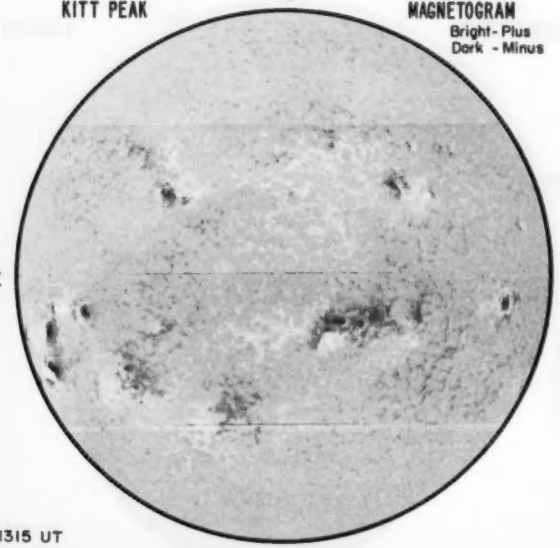


1426 UT

Sp

Np

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



1315 UT

Sp

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY =
DELTAX =

E W

Levels
± 5
± 10
± 20
± 40
± 80

Sp

21

BOULDER Np Hα BOULDER Np SUNSPOTS HALE OBSERVATORIES Np CALCIUM REPORT

Sp

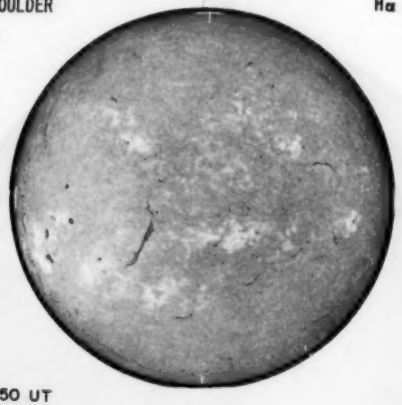
Sp

21

BOULDER

Np

Hα



E

W

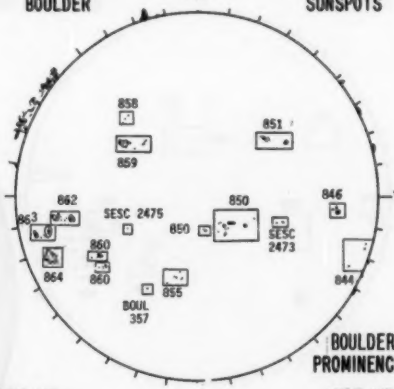
1450 UT

Sp

BOULDER

Np

SUNSPOTS



E

W

1245 UT

Sp

HALE OBSERVATORIES

Np

CALCIUM REPORT

NO DATA 21-24 MAY

E

W

BOULDER PROMINENCES

1450 UT

Sp

NOSC LA POSTA

Np

2.0 CM

NO DATA

E

EQUIPMENT

W

---- UT

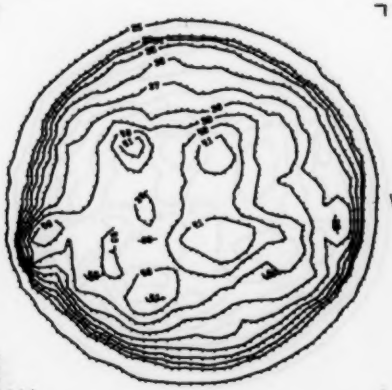
Sp

Ant. Temp. Unit 100° K

NOSC LA POSTA

Np

8.6 MM



E

W

1733 UT

Sp

Ant. Temp. Unit 100° K

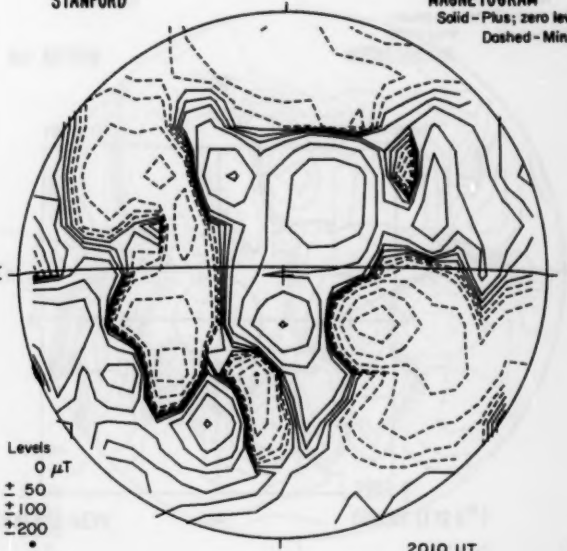
STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E

W

Levels

0 μT

± 50

±100

±200

2010 UT

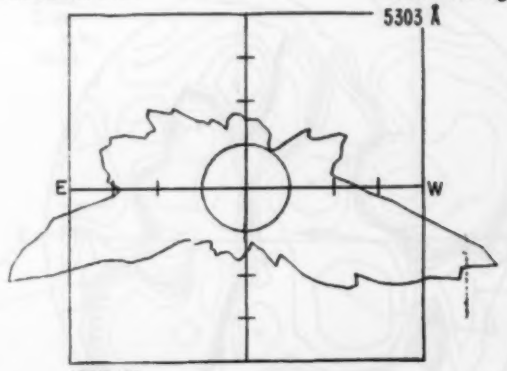
Sp

89

May 80

MAY 22, 1980 (P=-18.87, B_o=-1.80, L_o=232.62)

SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å

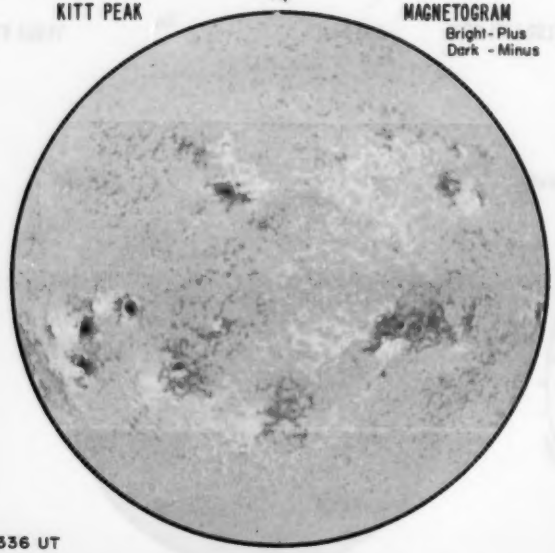


1607 UT

Sp

Np

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



1336 UT

Sp

MT. WILSON

DELTAY =
DELTAX =

MAGNETOGRAM
Solid-Plus
Dotted-Minus

E W

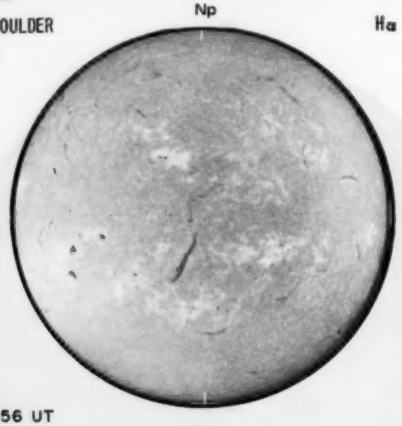
Sp

Levels
± 5
± 10
± 20
± 40
± 80

22

BOULDER Np Hα SAN FERNANDO Np SUNSPOTS HALE OBSERVATORIES Np CALCIUM REPORT

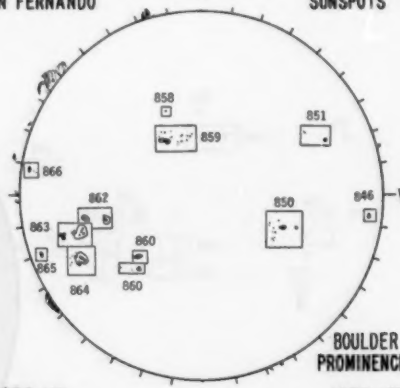
BOULDER Np Hα



E W

1456 UT Sp

SAN FERNANDO Np



1620 UT Sp

SUNSPOTS HALE OBSERVATORIES Np

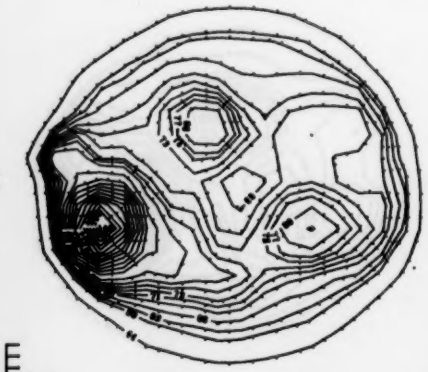
BOULDER PROMINENCES

1456 UT Sp

CALCIUM REPORT

E W E W E W

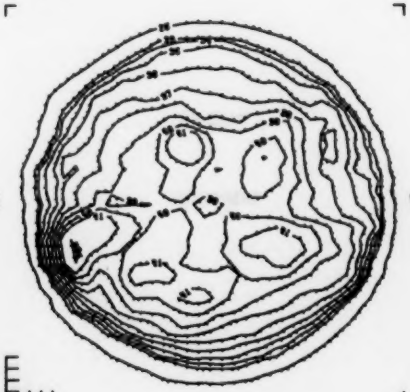
NOSC LA POSTA Np 2.0 CM



E W

1637 UT Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM

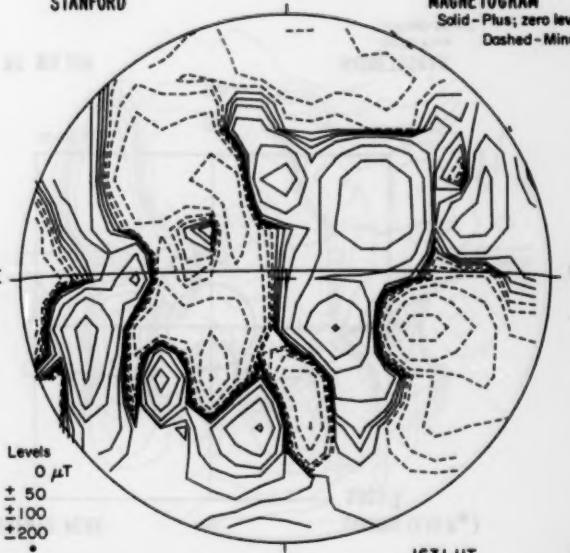


E W

1704 UT Sp Ant. Temp. Unit 100° K

STANFORD Np

MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus



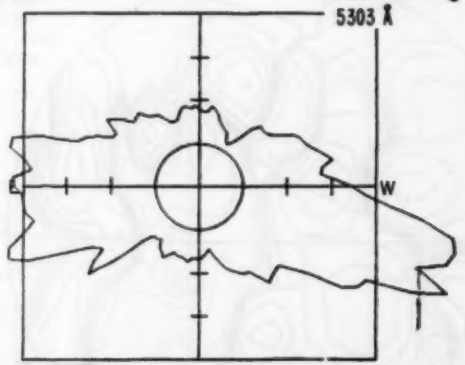
E W

Levels
0 μT
± 50
±100
±200

1631 UT Sp

MAY 23, 1980 (P = -18.55, B_o = -1.68, L_o = 219.39)

SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å

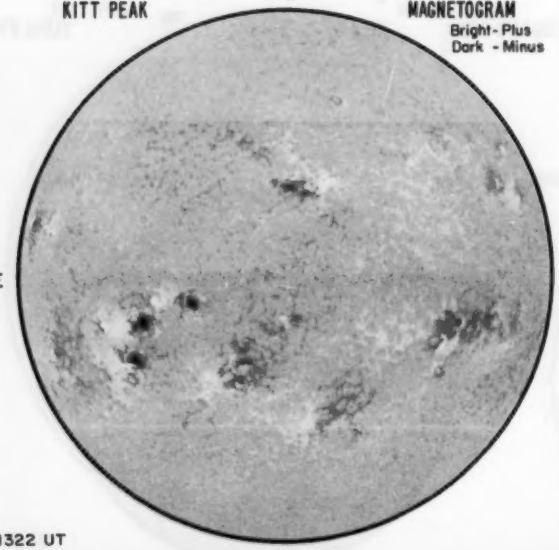


1648 UT

Sp

Np

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



1322 UT

Sp

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY =
DELTAX =

E W

Levels
± 5
± 10
± 20
± 40
± 80

Sp

23

BOULDER Np Hα SAN FERNANDO Np SUNSPOTS HALE OBSERVATORIES Np CALCIUM REPORT

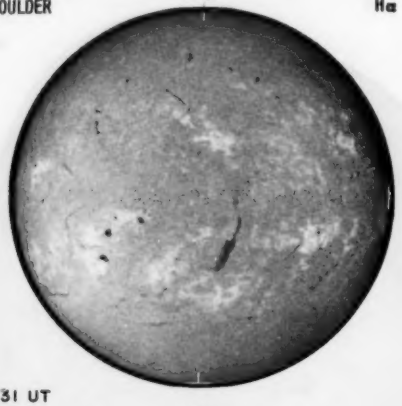
Sp

Sp

23

BOULDER

Np



E W

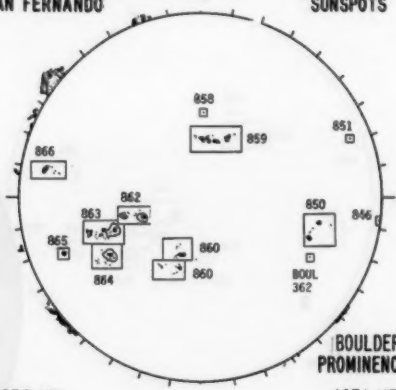
1431 UT

Sp

Hα

SAN FERNANDO

Np



E W

1630 UT

Sp

SUNSPOTS

HALE OBSERVATORIES

BOULDER PROMINENCES

Np

E W

1431 UT

Sp

CALCIUM REPORT

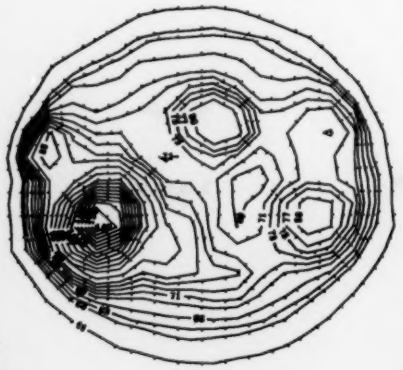
W

Sp

NOSC LA POSTA

Np

2.0 CM



E W

1534 UT

Sp

Ant. Temp. Unit 100° K

NOSC LA POSTA

Np

8.6 MM

NO DATA

EQUIPMENT

E W

---- UT

Sp

Ant. Temp. Unit 100° K

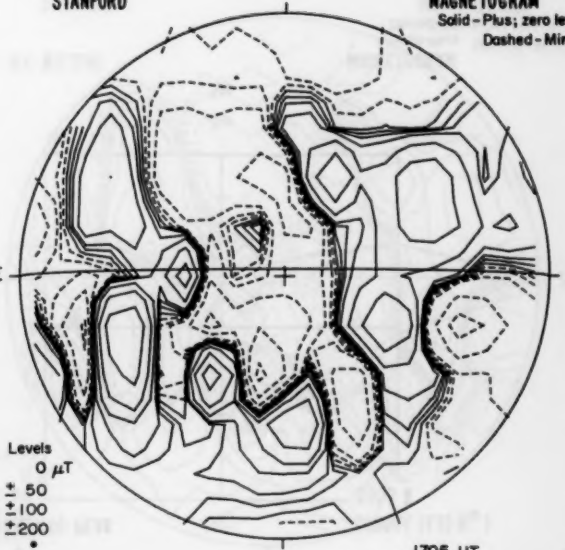
STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E W

Levels

0 μT

± 50

±100

±200

1705 UT

Sp

93

May 80

MAY 24, 1980 (P=-18.22, B_o=-1.57, L_o=206.16)

SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å

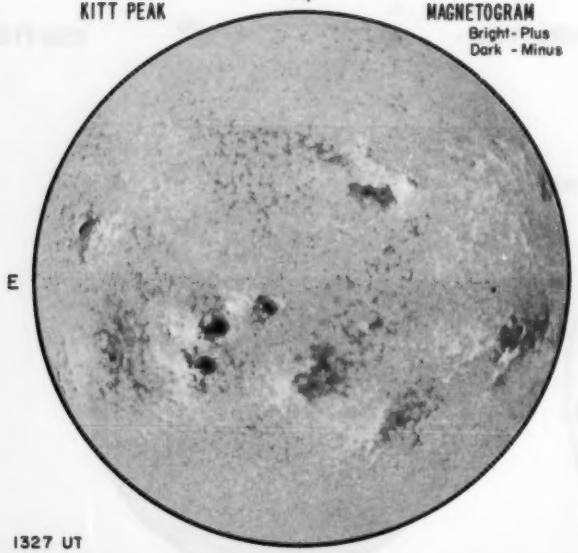
E W

1504 UT

Sp

Np

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



E W

1327 UT

Sp

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY =
DELTAX =

E W

Levels
5
10
20
40
80

Sp

24

BOULDER Np Hα SAN FERNANDO Np SUNSPOTS HALE OBSERVATORIES Np CALCIUM REPORT

Sp

Sp

24

BOULDER

Np

E W

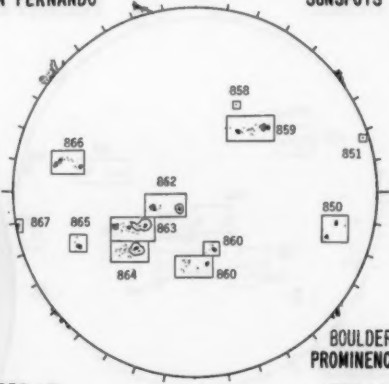
1235 UT

Sp

Hα

SAN FERNANDO

Np



E W

1630 UT

Sp

SUNSPOTS HALE OBSERVATORIES

BOULDER PROMINENCES

1235 UT

Np

CALCIUM REPORT

E W

Sp

NOSC LA POSTA

Np

2.0 CM

NO DATA

E W

SCHEDULE

---- UT

Sp

Ant. Temp. Unit 100° K

NOSC LA POSTA

Np

8.6 MM

NO DATA

E W

SCHEDULE

---- UT

Sp

Ant. Temp. Unit 100° K

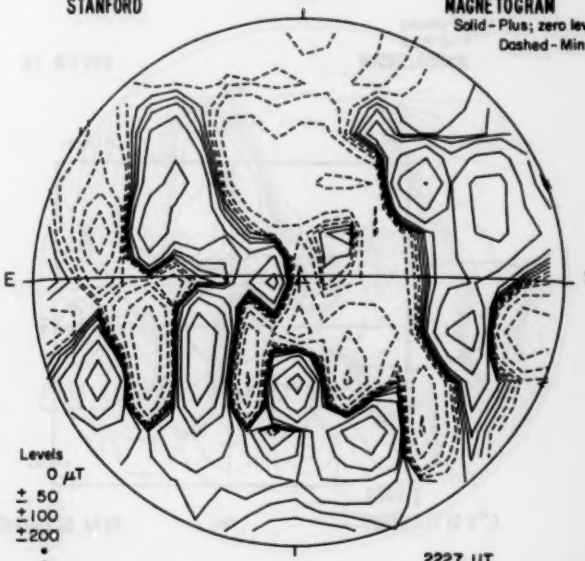
STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E W

Levels

0 μT

± 50

±100

±200

2227 UT

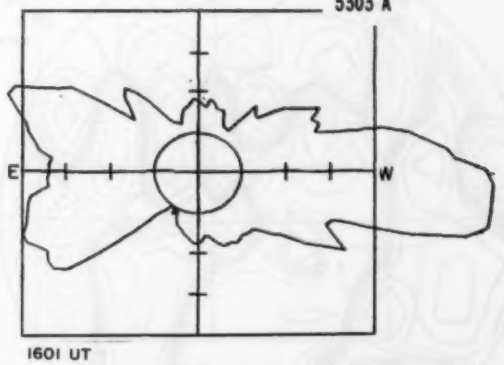
Sp

95

May 80

MAY 25, 1980 (P = -17.89, B_o = -1.45, L_o = 192.93)

SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å

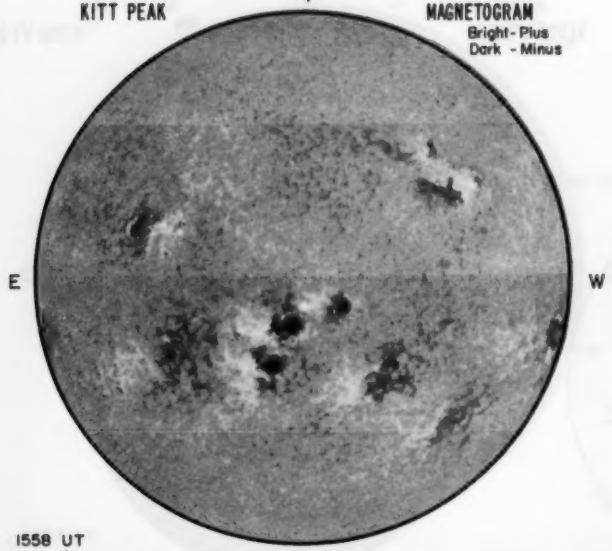


1601 UT

Sp

Np

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



1558 UT

Sp

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY =
DELTAX =

E W

Levels
± 5
± 10
± 20
± 40
± 80

Sp

25

BOULDER Np Hα

SAN FERNANDO Np

SUNSPOTS | HALE OBSERVATORIES Np

CALCIUM REPORT

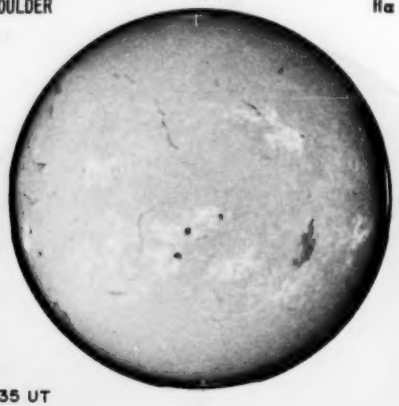
Sp

Sp

25

BOULDER

Np



E W

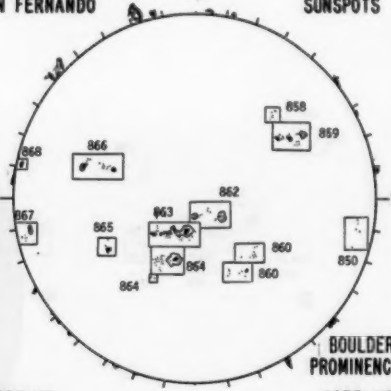
1435 UT

Sp

Hα

SAN FERNANDO

Np



E W

1600 UT

Sp

SUNSPOTS

BOULDER PROMINENCES

1435 UT

HALE OBSERVATORIES

Np

E W

2256 UT

Sp

CALCIUM REPORT

	FAIR	JA
50-	2700	3.0
55-	2000	3.0
56-	0100	2.5
57-	0100	2.5
58-	0800	2.5
59-	2800	2.5
60-	3800	3.0
62-	1100	3.0
63-	3000	3.5
64-	3800	3.5
65-	5000	3.0
66-	2300	3.0
67-	2000	4.0
68-	0900	2.5

NOSC LA POSTA

Np

2.0 CM

NO DATA

E

SCHEDULE

W

---- UT

Sp

Ant. Temp. Unit 100° K

NOSC LA POSTA

Np

8.6 MM

NO DATA

E

SCHEDULE

W

---- UT

Sp

Ant. Temp. Unit 100° K

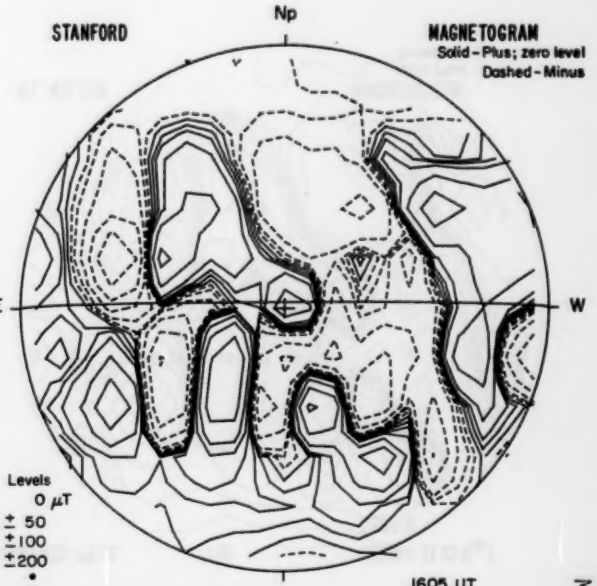
STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E W

Levels

0 μT

± 50

±100

±200

1605 UT

Sp

97

May 80

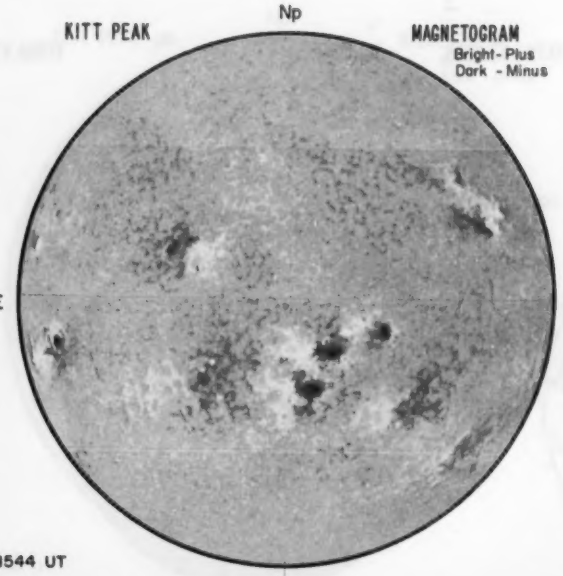
MAY 26, 1980 (P = -17.55, B_o = -1.33, L_o = 179.70)

SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å

E NO DATA 26-27 MAY W

Sp
Np

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



E W

1544 UT

Sp

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY =
DELTAX =

E W

Levels
± 5
± 10
± 20
± 40
± 80

Sp

26

BOULDER Np Hα SAN FERNANDO Np SUNSPOTS HALE OBSERVATORIES Np CALCIUM REPORT

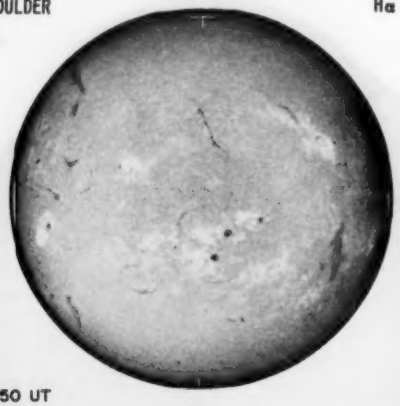
Sp

Sp

26

BOULDER

Np



E W

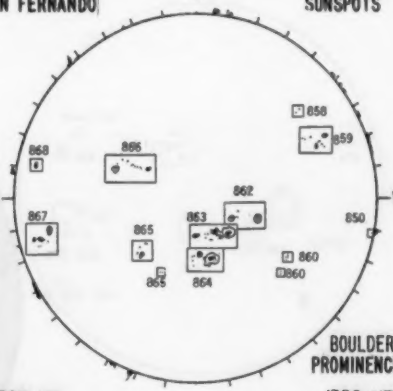
1350 UT

Sp

Hα

SAN FERNANDO

Np



E W E W

1550 UT

Sp

SUNSPOTS | HALE OBSERVATORIES

BOULDER PROMINENCES

1350 UT

Sp

Np

CALCIUM REPORT

NO DATA 26-27 MAY

W

Sp

NOSC LA POSTA

Np

2.0 CM

NO DATA

E SCHEDULE W

---- UT

Sp

Ant. Temp. Unit 100° K

NOSC LA POSTA

Np

8.6 MM

NO DATA

E SCHEDULE W

---- UT

Sp

Ant. Temp. Unit 100° K

STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

E W

Levels

0 μT

± 50

±100

±200

1618 UT

Sp

99

May 80

MAY 27, 1980 (P=-17.21, B_o=-1.21, L_o=166.47)

SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å

E W

1453 UT

Sp

Np

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY =
DELTAX =

E W

E W

1455 UT

Sp

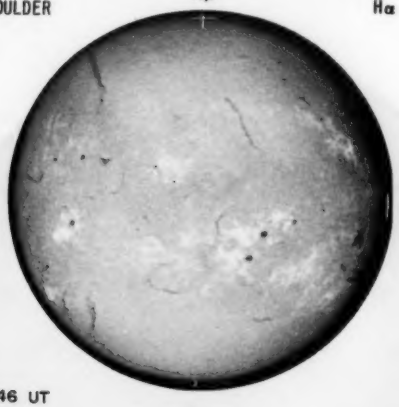
Levels
± 5
± 10
± 20
± 40
± 80

Sp

27

BOULDER Np Hα BOULDER Np SUNSPOTS HALE OBSERVATORIES Np CALCIUM REPORT

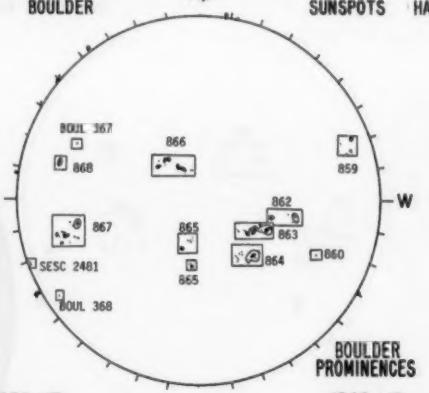
BOULDER Np Hα



E W

1246 UT Sp

BOULDER Np SUNSPOTS HALE OBSERVATORIES



E W

1230 UT Sp

BOULDER PROMINENCES

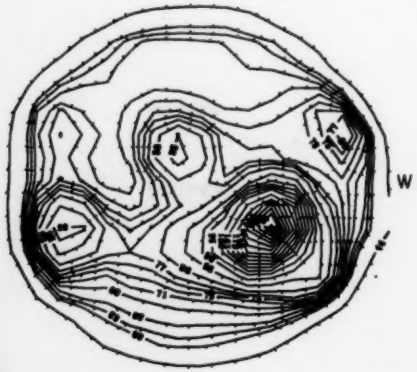
1246 UT Sp

Np CALCIUM REPORT

E W

Sp

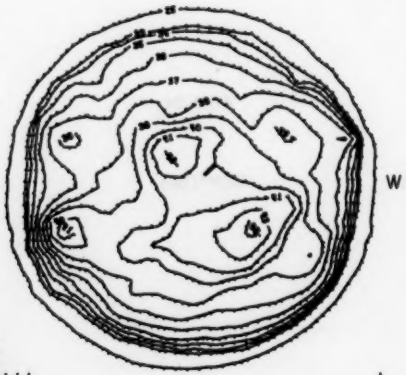
NOSC LA POSTA Np 2.0 CM



E W

1817 UT Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM



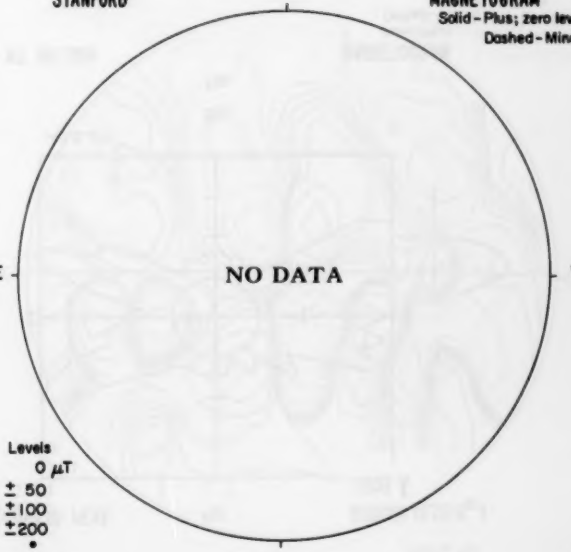
E W

1845 UT Sp Ant. Temp. Unit 100° K

STANFORD Np MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E W

Levels

0 μT

± 50

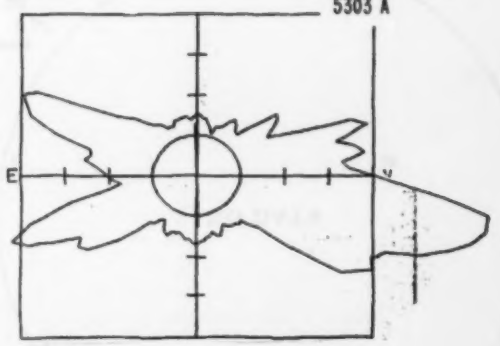
±100

±200

Sp

MAY 28, 1980 (P = -16.85, B_o = -1.09, L_o = 153.24)

SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å

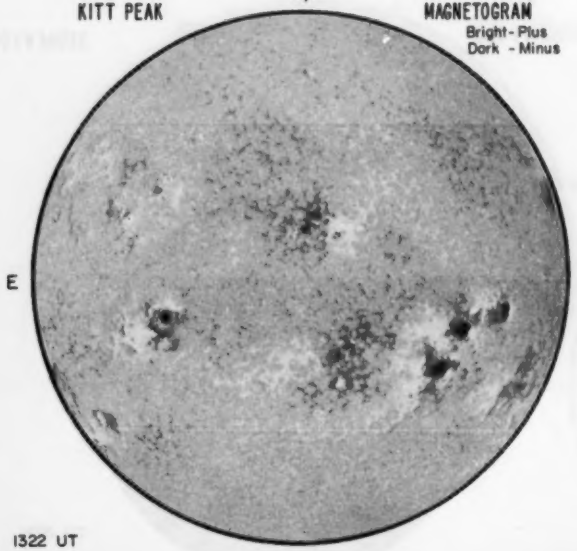


1453 UT

Sp

Np

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



1322 UT

Sp

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY =
DELTAX =

E W

Levels
± 5
± 10
± 20
± 40
± 80

Sp

28

BOULDER Np Hα

SAN FERNANDO Np SUNSPOTS

HALE OBSERVATORIES Np CALCIUM REPORT

Sp

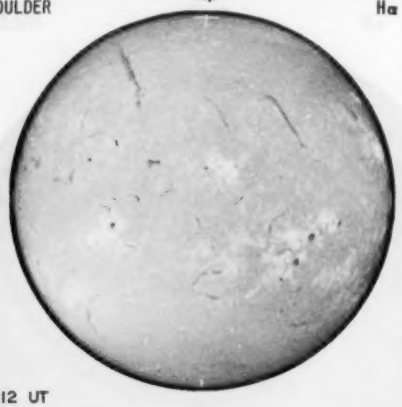
Sp

28

BOULDER

Np

Hα



E W

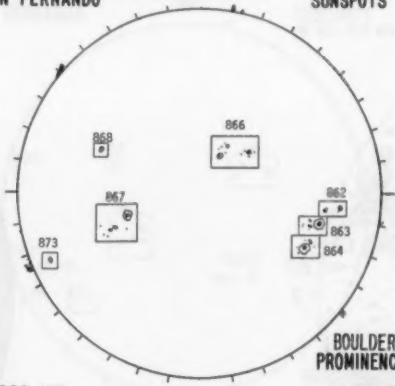
1412 UT

Sp

SAN FERNANDO

Np

SUNSPOTS



E W

1620 UT

Sp

HALE OBSERVATORIES

Np

CALCIUM REPORT

E W

V POOR | JA

65- 3600---

67- 3300---

1503 UT

Sp

BOULDER PROMINENCES

1412 UT

NOSC LA POSTA

Np

2.0 CM

NO DATA

E EQUIPMENT W

---- UT

Sp

Ant. Temp. Unit 100° K

NOSC LA POSTA

Np

8.6 MM

NO DATA

E EQUIPMENT W

---- UT

Sp

Ant. Temp. Unit 100° K

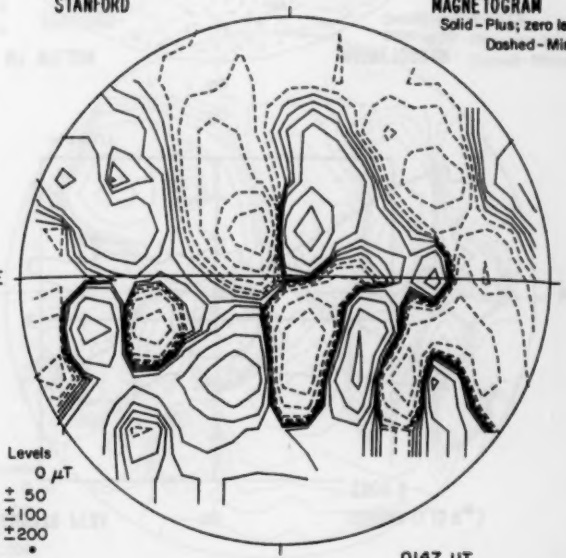
STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E W

Levels

0 μT

± 50

±100

±200

•

•

•

Sp

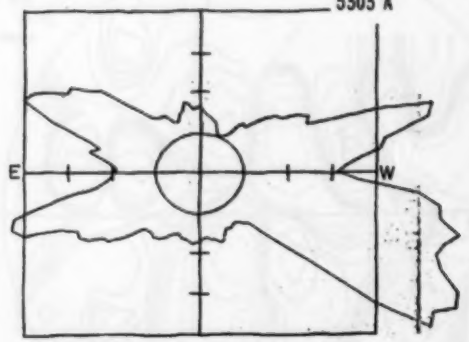
0147 UT

103

May 80

MAY 29, 1980 (P=-16.50, B_o=-0.97, L_o=140.00)

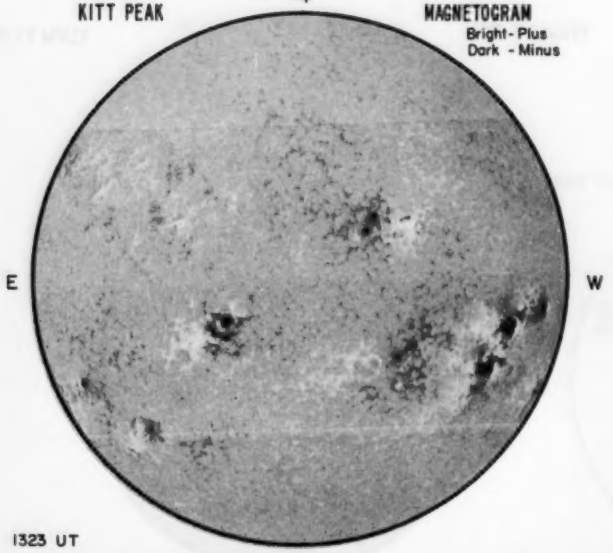
SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å



1444 UT

Sp

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus

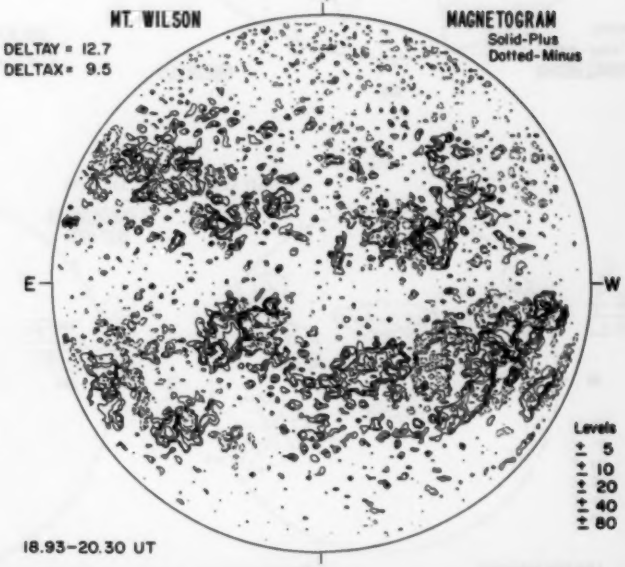


1323 UT

Sp

Np

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus
DELTAY = 12.7
DELTAX = 9.5



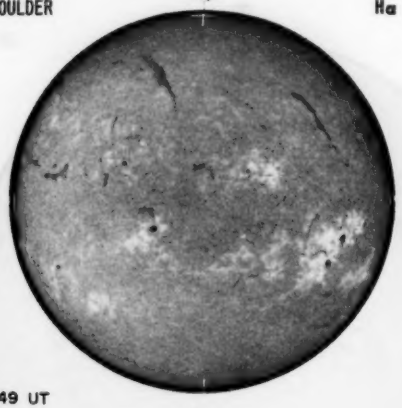
18.93-20.30 UT

Sp

29

BOULDER Np Hα SAN FERNANDO Np SUNSPOTS HALE OBSERVATORIES Np CALCIUM REPORT

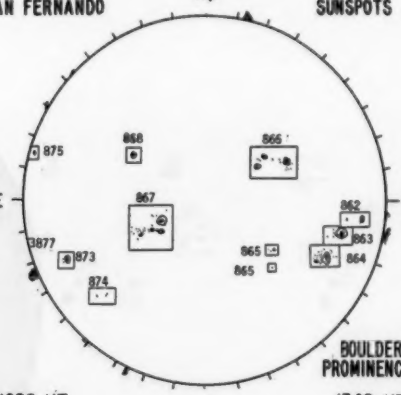
BOULDER



1349 UT

Hα

SAN FERNANDO



1620 UT

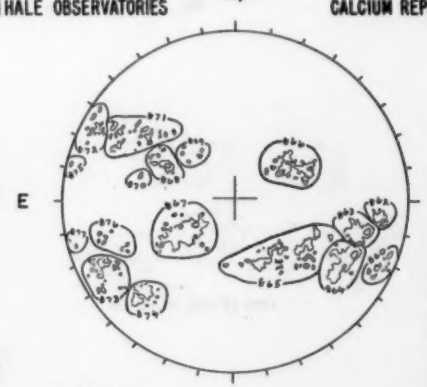
SUNSPOTS

BOULDER PROMINENCES

1349 UT

HALE OBSERVATORIES

CALCIUM REPORT



1708 UT

	FAIR	JA
60-	0700-	3.5
62-	0800-	3.0
63-	2400-	3.5
64-	3500-	3.5
65-	3900-	3.0
66-	2500-	3.0
67-	4200-	3.5
68-	1000-	3.0
69-	0500-	3.0
70-	0200-	3.0
71-	2300-	3.0
72-	1300-	3.0
73-	1800-	3.5
74-	1900-	4.0
75-	0100-	3.0
77-	0300-	2.5

NOSC LA POSTA

Np

2.0 CM

NO DATA

E

EQUIPMENT

W

---- UT

Sp

Ant. Temp. Unit 100° K

NOSC LA POSTA

Np

8.6 MM

NO DATA

E

EQUIPMENT

W

---- UT

Sp

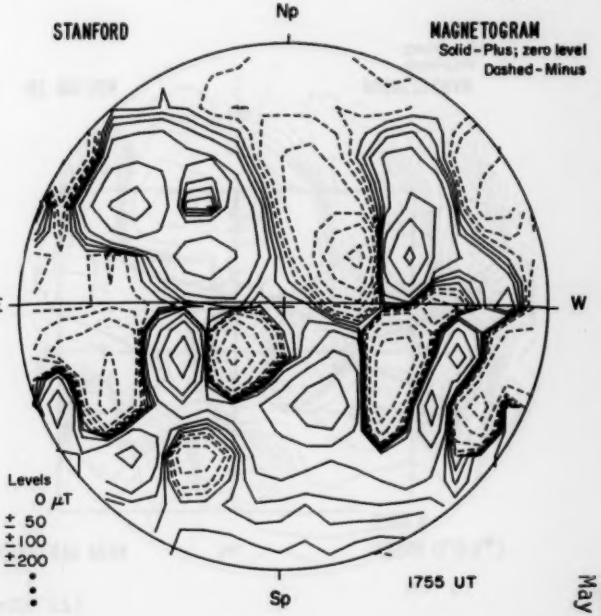
Ant. Temp. Unit 100° K

STANFORD

MAGNETOGRAM

Solid - Plus; zero level

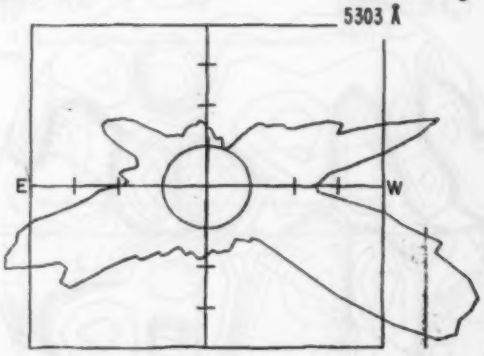
Dashed - Minus



1755 UT

MAY 30, 1980 (P = -16.14, B_o = -0.85, L_o = 126.77)

SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å

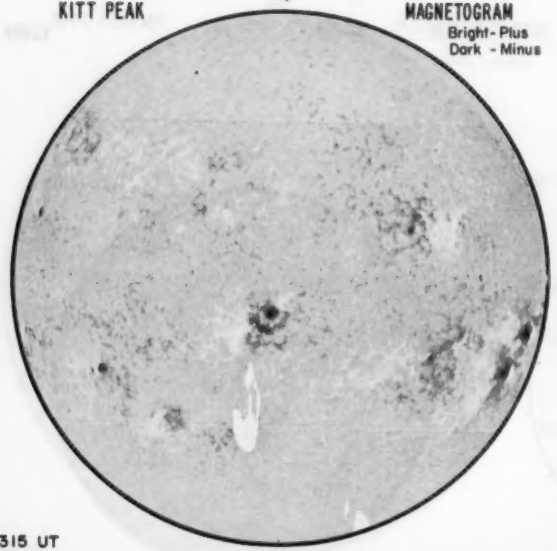


1354 UT

Sp

Np

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



1315 UT

Sp

MT. WILSON MAGNETOGRAM
Solid - Plus
Dotted - Minus

DELTAY =
DELTAX =

E NO DATA 30-31 MAY W

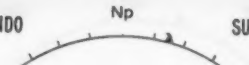
Levels
+ 5
+ + 10
+ + + 20
+ + + + 40
+ + + + + 80

Sp

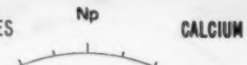
30

BOULDER Np Hα

SAN FERNANDO Np



SUNSPOTS HALE OBSERVATORIES Np



CALCIUM REPORT

Sp

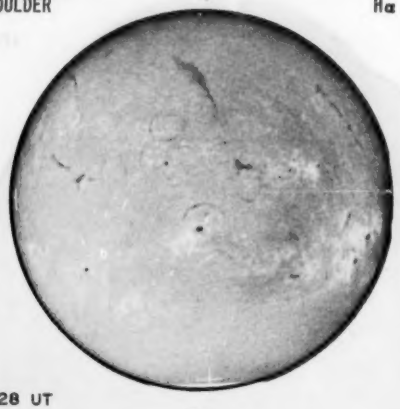
Sp

30

BOULDER

Np

Hα



E

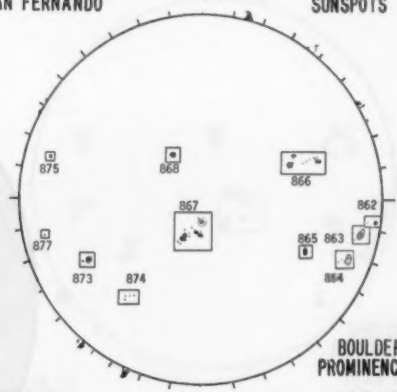
W

1628 UT

Sp

SAN FERNANDO

Np



E

W

1810 UT

Sp

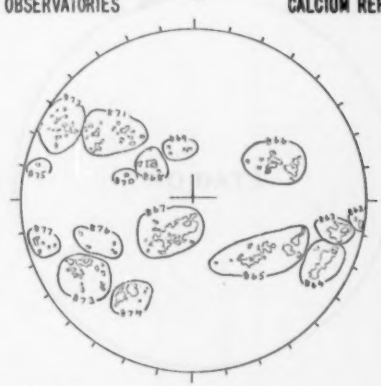
SUNSPOTS

HALE OBSERVATORIES

BOULDER PROMINENCES

1628 UT

Np



E

W

1405 UT

Sp

CALCIUM REPORT

FAIR | JA

67- 3100---

NOSC LA POSTA

Np

2.0 CM

NO DATA

E

EQUIPMENT

W

---- UT

Sp

Ant. Temp. Unit 100° K

NOSC LA POSTA

Np

8.6 MM

NO DATA

E

EQUIPMENT

W

---- UT

Sp

Ant. Temp. Unit 100° K

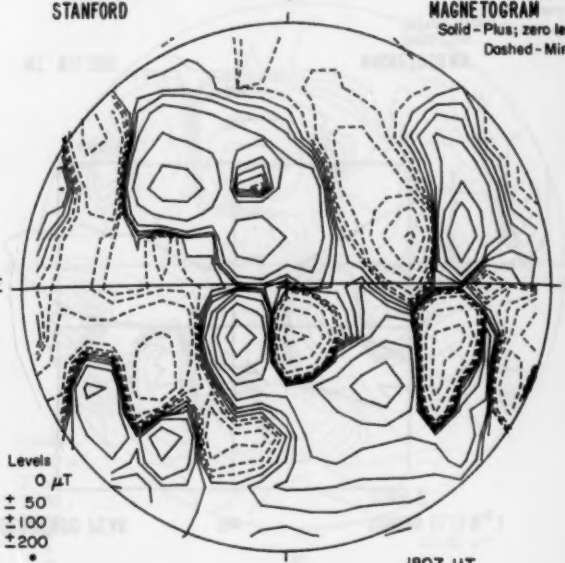
STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E

W

Levels

0 μT

± 50

±100

±200

•

•

•

1807 UT

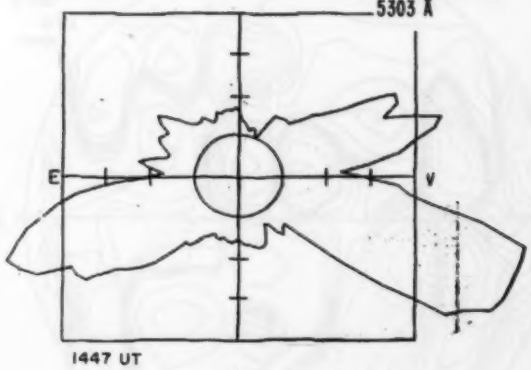
Sp

107

May 80

MAY 31, 1980 (P = -15.77, B_o = -0.73, L_o = 113.54)

SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å

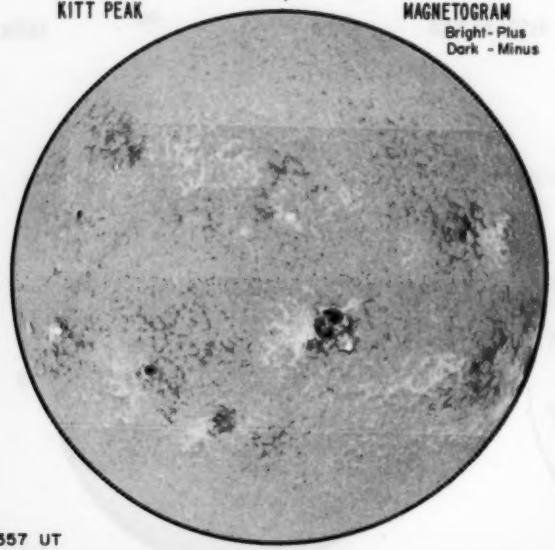


1447 UT

Sp

Np

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



1357 UT

Sp

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY =
DELTAX =

E W

Levels
± 5
± 10
± 20
± 40
± 80

Sp

31
BOULDER Np Hα BOULDER Np SUNSPOTS HALE OBSERVATORIES Np CALCIUM REPORT

Sp

Sp

31

BOULDER

Np

Hα

E

W

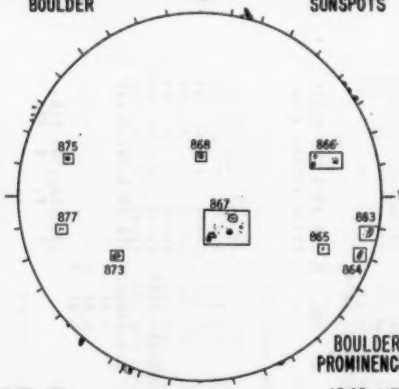
1249 UT

Sp

BOULDER

Np

SUNSPOTS



E

W

BOULDER PROMINENCES

1245 UT

1249 UT

Sp

HALE OBSERVATORIES

Np

CALCIUM REPORT

NO DATA

E

W

Sp

NOSC LA POSTA

Np

2.0 CM

NO DATA

E

SCHEDULE

W

---- UT

Sp

Ant. Temp. Unit 100° K

NOSC LA POSTA

Np

8.6 MM

NO DATA

E

SCHEDULE

W

---- UT

Sp

Ant. Temp. Unit 100° K

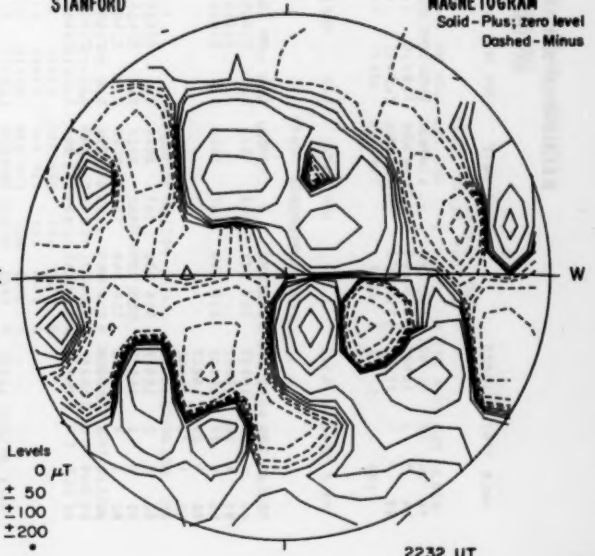
STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E

W

Levels

0 μT

± 50

±100

±200

2232 UT

Sp

109

May 80

REGIONS OF SOLAR ACTIVITY

MAY 1980

HALE REGION 16823 CMP DATE APR 30.5 (LATE DATA)

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	5	4	16823	S19 W69	169	100	3.0									
80	5	5	16823	S19 W79	168	100	2.5									

HALE REGION 16802 CMP DATE 1.1 NEW REGION IN LOCATION OF SOUTHERN PART OF REGION 16744

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	4	25	16802	S17 E71	148	600	3.0	21416	S16 E77		(BF)	3				
80	4	26	16802					21416	S17 E64		(B)	4				
80	4	27	16802	S16 E45	147	1600	3.5	21416	S17 E48		(B)	4				
80	4	28	16802						S15 E35				B	30.	24	EAI
80	4	29	16802						S15 E22				B	280	23	FSI
80	4	30	16802						S17 E10				R	31.	34	FAI
80	5	2	16802	S16 W21	147	3500	3.0	21416	S17 W19		(BY)	6				
80	5	3	16802	S16 W35	147	2900	3.0	21416	S18 W32		(B)	6				
80	5	4	16802	S16 W45	145	3000	2.5	21416	S17 W45		(B)	5				
80	5	5	16802	S17 W59	146	3500	3.5	21416	S19 W60		(BF)	5				
80	5	6	16802	S17 W71	145	2600	3.0	21416	S17 W70		(BP)	4				
80	5	7	16802	S17 W85	144	900	3.0	21416	S17 W85		9	2				

HALE REGION 16806 CMP DATE 1.1

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	5	2	16806	N31 W21	147	300	3.0									
80	5	3	16806	N31 W34	146	200	2.5									
80	5	4	16806	N32 W46	145	200	2.0									
80	5	5	16806	N30 W69	156	200	2.0									

HALE REGION 16801 CMP DATE 1.5

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	4	25	16801	N07 E78	141	400	3.0	21415	N10 E80		(B)	3				
80	4	26	16801					21415	N10 E65		(B)	4				
80	4	27	16801	N09 E49	143	300	3.5	21415	N08 E52		(B)	3				
80	4	29	16801						N11 E29				B	10	1	AXX
80	4	30	16801						N11 E18				R	20	3	BXO
80	5	2	16801	N09 W16	142	700	2.5									
80	5	3	16801	N09 W28	140	500	2.0									
80	5	4	16801	N09 W41	141	200	2.0									
80	5	5	16801	N09 W53	140	200	2.0									
80	5	6	16801	N10 W68	142	200	2.0									

HALE REGION 16803 CMP DATE 3.0

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	4	26	16803					21418	N05 E81		(AP)	4				
80	4	27	16803	N07 E69	123	300	2.5	21418	N06 E67		(AP)	4				
80	4	28	16803						N06 E55				B	1.	1	HRX
80	4	29	16803						N05 E38				B	1.	1	AXX
80	4	30	16803						N06 E30				R	20	2	BXO
80	5	2	16803	N09 E04	122	400	3.0	21418	N07 E03	125	B	2	B	2.	4	BXO
80	5	3	16803	N09 W11	123	400	3.0									
80	5	4	16803	N09 W23	123	200	2.5									
80	5	5	16803	N09 W37	124	200	2.5									
80	5	6	16803	N10 W50	124	400	2.5									
80	5	7	16803	N10 W65	124	200	2.5									

HALE REGION 16809 CMP DATE 3.4

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	5	2	16809	S33 E69	117	300	2.5									
80	5	3	16809	S32 W02	114	500	2.5	21424	S33 E05	110	(BF)	4	B	1.	2	BXO
80	5	4	16809	S32 W14	114	500	3.0	21424	S33 W08	110	(BP)	5				
80	5	5	16809	S33 W23	11.	500	3.0	21424	S33 W22	111	(BF)	5				
80	5	6	16809	S32 W35	109	500	3.0	21424	S32 W37	113	(BP)	3				
80	5	7	16809	S32 W48	107	800	3.0	21424	S32 W48	109	(B)	2				
80	5	8	16809	S32 W59	106	400	3.0	21424	S32 W65	114	(AP)	2				

REGIONS OF SOLAR ACTIVITY

MAY 1980

HALE REGION 16829 CMP DATE 3.4

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	5	5	16829	S13 W31	117	200	2.5	21431	S13 W28		(BY)	4				
80	5	6	16829	S13 W44	118	600	3.0	21431	S13 W43		(BP)	4				
80	5	7	16829	S13 W58	117	500	3.0	21431	S13 W57		(BP)	2				
80	5	8	16829	S13 W71	117	300	2.5	21431	S14 W72		(B)	3	R	20	4	BXO

HALE REGION 16907 CMP DATE 3.6

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	5	2	16907	N21 E12	114	200	3.0									
80	5	3	16907	N21 W23	135	100	1.0									

HALE REGION 16908 CMP DATE 4.3 RETURN OF REGION 16747 ROTATION 2

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	5	2	16908	N09 E19	107	600	3.0	21419	N10 E22	106	(AP)	6	B	350	2	HHX
80	5	3	16908	N09 E06	106	900	3.0	21419	N10 E09	106	(AP)	6	B	330	7	CKO
80	5	4	16908	N10 W07	107	500	2.5	21419	N10 W05	107	(BF)	6				
80	5	5	16908	N09 W19	106	600	3.0	21419	N09 W18	107	(AP)	6				
80	5	6	16908	N09 W32	106	800	3.5	21419	N10 W32	108	(AP)	5				
80	5	7	16908	N10 W46	105	500	3.0	21419	N10 W45	106	(AP)	5				
80	5	8	16908	N11 W58	105	400	2.5	21419	N11 W59	108	(BP)	5				

HALE REGION 16810 CMP DATE 4.5

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	5	2	16810	S17 E22	104	400	3.0	21421	S16 E23	105	(B)	5				
80	5	3	16810	S17 E09	103	300	2.5	21421	S17 E10	105	(B)	4				
80	5	4	16810	S17 W03	103	300	3.0	21421	S16 W04	106	(B)	3	B	10	2	BXO
80	5	5	16810	S17 W18	105	400	2.5									
80	5	6	16810	S16 W31	105	400	3.0									
80	5	7	16810	S15 W46	107	200	2.5									
80	5	8	16810	S15 W60	107	100	2.0									

HALE REGION 16811 CMP DATE 4.6

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	5	2	16811	N16 E24	102	500	3.0									
80	5	3	16811	N16 E11	101	400	3.0	21425	N17 E17		AF	2				
80	5	4	16811	N16 W02	102	300	3.0	21425	N16 W02		(AF)	3				
80	5	5	16811	N17 W16	103	400	3.0	21425	N15 W15		(AF)	4				
80	5	6	16811	N17 W28	102	500	3.5	21425	N17 W29		AF	2				
80	5	7	16811	N17 W44	103	500	3.5									
80	5	8	16811	N17 W54	101	300	3.0									

HALE REGION 16813 CMP DATE 3.9

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	5	2	16813	N13 E43	83	200	3.0									
80	5	3	16813	N14 E30	82	100	3.5									
80	5	4	16813	N13 E17	83	100	1.5									
80	5	5	16813	N13 E03	84	100	2.0	21432	N11 E04		(BP)	4				
80	5	6	16813	N13 W10	84	300	3.0	21432	N11 W10		(AP)	3				
80	5	7	16813	N13 W25	85	100	2.0									

HALE REGION 16816 CMP DATE 3.2 RETURN OF LEADING EDGE OF REGION 16759 ROTATIONS 8 AND 7

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	5	2	16816	S14 E46	88	200	3.0									
80	5	3	16816	S13 E33	79	300	3.0									
80	5	4	16816	S13 E20	80	300	3.0									
80	5	5	16816	S13 E07	80	300	3.0									
80	5	6	16816	S13 W05	79	400	2.0									
80	5	7	16816	S12 W19	78	200	2.5									
80	5	8	16816	S12 W32	79	300	2.5	21441	S12 W27		(AP)	2				

REGIONS OF SOLAR ACTIVITY

MAY 1980

HALE REGION 16840 CMP DATE 6.4

CALCIUM PLAGE DATA							SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	5	8	16840	S05 W31	78	200	2.0	21440	S06 W29		(B)	2				

HALE REGION 16812 CMP DATE 6.5 LEADING HALF IS THE RETURN OF REGION 16752, ROTATIONS 2 AND 1
/TRAILING HALF IS NEW

CALCIUM PLAGE DATA							SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	5	2	16812	N22 E42	84	4100	3.5	21423	N22 E58		(BF)	4				
80	5	3	16812	N23 E31	81	4200	4.0	21423	N22 E45		(BF)	5				
80	5	3	16812					21426	N20 E20		B	2				
80	5	4	16812	N24 E20	80	5600	3.5	21430	N25 E21	81	(B)	4				
80	5	4	16812					21423	N23 E31		(BF)	5				
80	5	5	16812	N24 E10	77	5700	4.0	21423	N22 E18		(BF)	5				
80	5	6	16812	N25 W04	78	5800	4.0	21423	N24 E05		(BY)	5				
80	5	7	16812	N25 W15	74	5800	3.5	21423	N23 W05		(BY)	4				
80	5	8	16812	N26 W28	75	4400	3.5	21423	N24 W20		(D)	3				

HALE REGION 16815 CMP DATE 6.5

CALCIUM PLAGE DATA							SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	5	2	16815	S22 E46	80	3400	3.5	21422	S20 E45		(BP)	5				
80	5	3	16815	S22 E33	79	3900	4.0	21422	S21 E33		(BP)	5				
80	5	4	16815	S22 E20	80	3600	3.5	21422	S20 E19		(BP)	6				
80	5	5	16815	S23 E11	76	3600	4.0	21422	S20 E06		(BP)	6				
80	6	5	16815					21433	S28 E09		(AP)	3				
80	5	6	16815	S22 W04	78	3500	4.5	21422	S20 W05		(BP)	6				
80	5	6	16815					21433	S28 E04		(B)	3				
80	5	7	16815	S22 W18	77	3500	4.0	21422	S20 W18		(D)	4				
80	5	8	16815	S22 W29	76	2600	4.0	21422	S20 W31		(D)	5	R	500	26	EKI
80	5	9	16815						S20 W42				B	340	12	EHO
80	5	11	16815					21422	S20 W71		(BP)	3				

HALE REGION 16817 CMP DATE 6.8 RETURN OF NORTH PART OF REGION 16759 ROTATIONS 8 AND 7

CALCIUM PLAGE DATA							SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	5	2	16817	S13 E57	69	100	2.0									
80	5	3	16817	S10 E41	71	100	2.5									
80	5	4	16817	S10 E28	72	100	2.5									
80	5	5	16817	S10 E16	71	100	2.5									
80	5	6	16817	S10 E02	72	100	2.5									

HALE REGION 16841 CMP DATE 7.1 NEW REGION IN LOCATION OF THE CENTRAL PART OF REGION 16759

CALCIUM PLAGE DATA							SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	5	8	16841	S16 W22	69	200	2.5	21442	S14 W23		(AP)	2				
80	5	11	16841					21442	S16 W61		(B)	3				

HALE REGION 16832 CMP DATE 7.2

CALCIUM PLAGE DATA							SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	5	5	16832	N06 E19	68	100	3.0	21434	N05 E22		(B)	3				
80	5	6	16832	N06 E07	67	100	2.5									

HALE REGION 16834 CMP DATE 7.2

CALCIUM PLAGE DATA							SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	5	6	16834	S13 E07	67	100	3.0									
80	5	7	16834	S12 W08	67	100	2.5									

REGIONS OF SOLAR ACTIVITY

MAY 1980

HALE REGION 16814 — CMP DATE 7.7 — RETURN OF REGION 16757 — ROTATION 5

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	5	2	16814	N17 E64	62	300	3.0									
80	5	3	16814	N18 E51	61	400	3.0									
80	5	4	16814	N18 E39	61	300	2.0		N22 E31				B	110	15	CAI
80	5	5	16814	N16 E27	60	400	3.0									
80	5	6	16814	N17 E13	61	800	3.0									
80	5	7	16814	N18 W04	63	400	2.5	21437	N18 E09		(B)	2				
80	5	8	16814	N18 W13	60	400	2.5	21443	N16 W15		(AP)	2				

HALE REGION 16818 — CMP DATE 7.5 — RETURN OF THE TRAILING PART OF REGION 16759 — ROTATIONS 8 AND 7

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	5	2	16818	S23 E66	60	100	2.0									
80	5	3	16818	S20 E50	62	200	2.5									
80	5	4	16818	S20 E39	61	200	2.5									
80	5	5	16818	S22 E25	62	200	2.5									
80	5	6	16818	S22 E14	60	200	2.0									
80	5	7	16818	S19 E01	58	100	2.0									

HALE REGION 16833 — CMP DATE 8.0

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	5	6	16833	N09 E16	56	200	2.5									

HALE REGION 16819 — CMP DATE 8.3 — RETURN OF THE LEADING EDGE OF REGION 16762 — ROTATION 2

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	5	2	16819	S14 E77	49	100	2.5									
80	5	3	16819	S12 E63	49	200	3.0									
80	5	4	16819	S12 E50	50	200	3.0									
80	5	5	16819	S13 E36	51	200	3.0									
80	5	6	16819	S13 E24	50	400	3.0									
80	5	7	16819	S13 E07	52	400	3.0									
80	5	8	16819	S13 W05	52	300	3.5									
80	5	9	16819						S11 W17				B	0	1	AXX

HALE REGION 16830 — CMP DATE 8.4 — NEW REGION IN THE LOCATION OF THE REAR PART OF REGION 16757

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	5	5	16830	N14 E37	50	100	2.5									
80	5	6	16830	N14 E25	49	200	2.5									
80	5	7	16830	N14 E08	51	200	2.5									
80	5	8	16830	N14 W04	51	400	3.5	21444	N13 W03	52	(B)	4				
80	5	9	16830						N13 W16				B	70	13	CSO
80	5	10	16830						N12 W28				B	120	3	OSO
80	5	11	16830					21444	N13 W46	56	(BP)	4				
80	5	12	16830						N13 W57				B	60	1	HSX
80	5	13	16830					21444	N12 W75	59	AP	3				

HALE REGION 16820 — CMP DATE 8.5

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	5	2	16820	N23 E71	55	300	3.5									
80	5	3	16820	N25 E59	54	300	4.0	21427	N26 E68	47	(AP)	3				
80	5	4	16820	N26 E47	53	500	3.5	21427	N27 E58	52	(BF)	3	B	50	8	CAI
80	5	5	16820	N26 E34	53	700	3.5	21427	N26 E38	51	(B)	5				
80	5	6	16820	N26 E23	51	700	3.5	21427	N26 E26	50	(BF)	3				
80	5	7	16820	N27 E09	50	800	3.5	21427	N26 E15	46	(B)	3				
80	5	8	16820	N27 W02	49	1000	3.5	21427	N27 E03	46	(AF)	3	R	10	6	BXO
80	5	13	16820					21449	N20 W68		BP	2				

REGIONS OF SOLAR ACTIVITY

MAY 1980

HALE REGION 16822 CMP DATE 8.9 RETURN OF REGION 16762 ROTATION 2

			CALCIUM FLAGE DATA					SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
80	5	3	16822	S20 E67	45	500	3.0								
80	5	4	16822	S20 E53	47	300	3.0								
80	5	5	16822	S20 E43	44	900	3.0	21435	S14 E45		(AP)	3			
80	5	6	16822	S19 E29	45	700	3.0								
80	5	7	16822	S17 E15	44	600	3.0								
80	5	8	16822	S17 E02	45	700	3.0								
80	5	11	16822					21446	S12 W36		(B)	3			
80	5	12	16822					21446	S11 W65		BP	3			

HALE REGION 16821 CMP DATE 9.4

			CALCIUM FLAGE DATA					SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
80	5	3	16821	N24 E78	42	300	3.5								
80	5	4	16821	N24 E59	41	200	3.5								
80	5	5	16821	N24 E44	43	500	3.0								
80	5	6	16821	N24 E34	40	500	3.0								
80	5	7	16821	N26 E20	39	300	3.0								
80	5	8	16821	N26 E09	38	300	3.5								

HALE REGION 16826 CMP DATE 9.9 RETURN OF THE TRAILING EDGE OF REGION 16762 ROTATION 2

			CALCIUM FLAGE DATA					SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
80	5	3	16826					21428	S20 E04	31	AP	2			
80	5	4	16826	S21 E67	33	200	3.0	21428	S21 E70	32	(AP)	5			
80	5	5	16826	S22 E55	32	200	3.0	21428	S22 E56	33	(AP)	5			
80	5	6	16826	S21 E42	32	100	3.0	21428	S22 E43	33	(AP)	4			
80	5	7	16826	S21 E28	31	100	3.0	21428	S22 E30	31	(AP)	4			
80	5	8	16826	S22 E16	31	200	2.0	21429	S21 E17	32	(AP)	4			
80	5	9	16826						S20 E03				B	20	1 HRX
80	5	11	16826					21428	S21 W22	32	(AP)	3			

HALE REGION 16827 CMP DATE 9.9 RETURN OF THE SOUTHERN PART OF REGION 16762 ROTATION 2

			CALCIUM FLAGE DATA					SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
80	5	4	16827	S25 E67	33	100	2.5								
80	5	5	16827	S26 E56	29	500	3.0								
80	5	6	16827	S25 E43	31	500	2.5								
80	5	7	16827	S26 E31	28	600	3.0								
80	5	8	16827	S26 E16	31	500	3.0								

HALE REGION 16824 CMP DATE 10.6

			CALCIUM FLAGE DATA					SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
80	5	4	16824	N04 E75	25	100	3.0								
80	5	5	16824	N04 E60	27	100	2.5								
80	5	6	16824	N04 E48	26	200	3.0								
80	5	7	16824	N06 E37	22	200	1.5								

HALE REGION 16825 CMP DATE 11.0 RETURN OF REGION 16768 ROTATION 2

			CALCIUM FLAGE DATA					SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
80	5	4	16825	S06 E76	24	300	3.0								
80	5	5	16825	S10 E69	18	1400	3.0								
80	5	6	16825	S09 E56	18	2200	3.0								
80	5	7	16825	S09 E43	16	2100	3.0								
80	5	8	16825	S09 E30	17	1400	3.0	21445	S08 E35		(B)	2			

REGIONS OF SOLAR ACTIVITY

MAY 1980

HALE REGION 16831 CMP DATE 11.1

			CALCIUM	PLAGE	DATA		SUNSPOT	DATA						
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	5	5	16831	N28 E65	19	100	2.0									
80	5	6	16831	N28 E58	16	100	2.5									
80	5	7	16831	N28 E45	14	100	1.5									
80	5	8	16831	N28 E32	15	100	1.5									

HALE REGION 16835 CMP DATE 11.9

			CALCIUM	PLAGE	DATA		SUNSPOT	DATA						
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	5	6	16835	N12 E78	4	200	1.5									
80	5	7	16835	N13 E55	4	300	2.5									
80	5	8	16835	N13 E42	5	200	2.5									

HALE REGION 16838 CMP DATE 12.7 RETURN OF THE TRAILING PART OF REGION 16768 ROTATION 2

			CALCIUM	PLAGE	DATA		SUNSPOT	DATA						
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	5	7	16838	S16 E56	3	300	3.0									
80	5	8	16838	S16 E44	3	500	3.0									
80	5	16	16838	S20 W54	356	100	2.0									
80	5	17	16838	S19 W68	357	100	2.0	21460	S22 W68	359	EAP	2	R	10	2	BXO

HALE REGION 16828 CMP DATE 12.9 RETURN OF REGION 16763 ROTATION 2

			CALCIUM	PLAGE	DATA		SUNSPOT	DATA						
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	5	4	16828	S27 E80	20	200	2.5									
80	5	5	16828	S33 E75	9	1000	3.0	21436	S33 E85		(AP)	4				
80	5	6	16828	S32 E68	6	3200	3.0	21436	S32 E70		(BF)	4				
80	5	7	16828	S32 E55	4	4400	4.0	21436	S32 E58		(B)	3				
80	5	8	16828	S32 E41	6	4800	3.5	21436	S32 E49		(BF)	3				
80	5	9	16828						S31 E32				B	10	4	BXO
80	5	11	16828					21436	S32 E12		(AF)	3				
80	5	13	16828					21450	S31 W22	6	AP	2	B	10	2	AXX
80	5	13	16828					21436	S32 W12		B	2				
80	5	16	16828	S33 W51	353	1400	2.5									
80	5	17	16828	S33 W62	351	1200	2.0									
80	5	18	16828	S34 W69	343	500	2.0									

HALE REGION 16837 CMP DATE 13.5 RETURN OF REGIONS 16772 AND 16773 ROTATION 2

			CALCIUM	PLAGE	DATA		SUNSPOT	DATA						
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	5	7	16837	N16 E70	353	400	3.0									
80	5	8	16837	N17 E63	345	1000	3.0									
80	5	16	16837	N20 W43	345	200	2.0									
80	5	17	16837	N21 W55	344	200	2.5									
80	5	18	16837	N21 W73	347	200	1.5									

HALE REGION 16839 CMP DATE 13.5

			CALCIUM	PLAGE	DATA		SUNSPOT	DATA						
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	5	7	16839	S18 E77	343	1300	4.0	21439	S18 E78	344	(BP)	3				
80	5	8	16839	S18 E62	346	1800	4.0	21439	S17 E66	344	(BP)	4				
80	5	11	16839					21439	S17 E24	347	(D)	5				
80	5	13	16839					21439	S16 W04	348	BP	5				
80	5	16	16839	S16 W43	345	1500	2.0	21439	S16 W46	351	(BP)	4	R	280	17	DSO
80	5	17	16839	S15 W55	344	1300	3.0	21439	S16 W59	350	(BP)	4	R	270	14	DAO
80	5	18	16839	S16 W69	343	1000	3.0	21439	S16 W74	352	(BP)	3				
80	5	19	16839					21439	S17 W88	353	AP	2				

REGIONS OF SOLAR ACTIVITY

MAY 1980

HALE REGION 16836 CMP DATE 13.7 RETURN OF REGION 16771 ROTATION 3

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
80	5	6	16836	S22 E73	1	300	2.0								
80	5	7	16836	S23 E67	353	500	3.0	21438	S23 E69		(AP)	3			
80	5	8	16836	S24 E55	353	900	3.0	21438	S22 E54		(AP)	2			
80	5	16	16836	S24 W41	343	300	2.5								
80	5	17	16836	S24 W54	343	300	2.5								
80	5	18	16836	S24 W66	340	100	2.5								

HALE REGION 16842 CMP DATE 15.1

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
80	5	11	16842					21447	S21 E46		(B)	4			
80	5	13	16842					21447	S21 E28		(B)	4			
80	5	16	16842	S21 W22	324	800	2.5	21447	S21 W20		(BY)	4			
80	5	17	16842	S20 W36	325	1400	3.0	21447	S22 W37		(BY)	4			
80	5	18	16842	S21 W47	321	800	3.0	21447	S21 W50		(BP)	3			
80	5	19	16842					21447	S21 W67		(AP)	3			
80	5	20	16842	S22 W70	317	200	2.5	21447	S21 W82		AP	2			

HALE REGION 16843 CMP DATE 15.2 RETURN OF THE TRAILING PART OF REGION 16771 ROTATION 3

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
80	5	16	16843	S29 W21	323	500	2.5	21454	S26 W24	329	(AF)	2			
80	5	17	16843	S28 W33	322	300	3.0								
80	5	18	16843	S29 W43	317	200	3.0								
80	5	20	16843	S30 W70	317	300	2.5								

HALE REGION 16844 CMP DATE 16.1

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
80	5	11	16844					21448	S22 E61		(B)	3			
80	5	13	16844					21448	S22 E35		(BY)	4			
80	5	16	16844	S20 W09	311	700	2.5	21448	S22 W06		(BP)	4			
80	5	17	16844	S20 W22	311	1000	3.0	21448	S23 W20		(BP)	4			
80	5	18	16844	S20 W35	309	600	2.5	21448	S22 W32		(BP)	4			
80	5	19	16844					21448	S22 W47		(BP)	4			
80	5	20	16844	S19 W61	308	400	2.5	21448	S22 W60		(BP)	3			

HALE REGION 16845 CMP DATE 17.3 RETURN OF PART OF REGION 16777 ROTATION 3

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
80	5	16	16845	S27 E07	295	100	2.0								
80	5	17	16845	S26 W06	294	200	2.5								
80	5	18	16845	S26 W17	291	200	2.0								
80	5	20	16845	S26 W49	296	200	2.5								

HALE REGION 16846 CMP DATE 17.8

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
80	5	13	16846					21453	S09 E54	290	B	4			
80	5	16	16846	S06 E13	289	700	3.0	21453	S08 E14	291	(D)	4	R	270	32 DAI
80	5	17	16846	S06 E01	286	1000	3.5	21453	S08 E02	289	(BY)	4	R	220	25 DAI
80	5	18	16846	S07 W15	289	700	2.5	21453	S07 W13	291	(D)	4			
80	5	19	16846					21453	S07 W27	292	(D)	4			
80	5	20	16846	S07 W43	290	1100	3.0	21453	S08 W40	292	(BY)	4	B	170	23 CKI
80	5	21	16846						S07 W51				B	120	8 CAO
80	5	22	16846						S07 W66				B	90	1 HSX
80	5	23	16846						S06 W78				B	80	1 HSX

REGIONS OF SOLAR ACTIVITY

MAY 1980

HALE REGION 16847 CMP DATE 18.6 RETURN OF THE SOUTHERN EDGE OF REGION 16779 ROTATION 7

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	5	16	16847	N25 E22	260	100	2.5	21455	N24 E24	261	(B)	2	R	10	4	BXO
80	5	17	16847	N25 E11	278	200	3.0	21455	N26 E09	262	(AP)	3	R	10	1	AXX
80	5	18	16847	N25 W13	287	100	2.0	21455	N27 W04	262	(AP)	2				

HALE REGION 16848 CMP DATE 18.7 RETURN OF THE LEADING EDGE OF REGION 16783 ROTATION 2

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	5	16	16848	S16 E26	276	100	2.0									
80	5	17	16848	S15 E13	276	300	2.5									
80	5	18	16848	S15 W02	276	100	2.0									
80	5	20	16848	S15 W30	277	300	2.5									

HALE REGION 16851 CMP DATE 19.3 NEW REGION IN THE LOCATION OF REGION 16784

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	5	16	16851	N16 E35	267	500	3.5	21456	N15 E37	268	(B)	4	R	50	13	DRI
80	5	17	16851	N15 E23	266	1200	3.0	21456	N15 E24	267	(D)	4	R	320	33	EHC
80	5	18	16851	N15 E06	263	1400	2.5	21456	N15 E10	268	(BY)	4				
80	5	19	16851					21456	N16 W03	268	(B)	4	B	220	25	DSO
80	5		16851					21471	N22 W18	283	AP	1				
80	5	20	16851	N16 W18	265	1100	2.5	21456	N15 W16	268	(B)	4	B	160	17	DSO
80	5	21	16851						N17 W26				B	170	13	DAO
80	5	22	16851						N17 W40				B	70	6	DSO
80	5	23	16851						N15 W58				B	50	1	HSX
80	5	24	16851					21456	N14 W74	272	(AP)	3	B	40	1	HSX

HALE REGION 16849 CMP DATE 19.5 RETURN OF THE REAR PART OF REGION 16783 ROTATION 2

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	5	16	16849	S13 E36	266	700	3.0									
80	5	17	16849	S13 E24	265	500	3.0	21461	S08 E25	266	(AP)	2				
80	5	18	16849	S12 E08	266	700	3.0									
80	5	20	16849	S12 W20	267	700	3.0									

HALE REGION 16852 CMP DATE 20.6 RETURN OF REGION 16787 ROTATION 2

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	5	16	16852	N25 E49	253	600	3.0									
80	5	17	16852	N25 E35	254	1200	3.5									
80	5	18	16852	N25 E22	252	900	2.5									
80	5	20	16852	N25 W03	250	1400	3.0									
80	5	25	16852	N25 W64	245	400	2.0									

HALE REGION 16850 CMP DATE 20.8 RETURN OF REGION 16789 ROTATION 2

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	5	16	16850	S12 E52	250	4000	3.5	21457	S13 E55	250	(D)	5	R	390	28	EKI
80	5	17	16850	S12 E42	247	5000	4.0	21457	S13 E42	249	(B)	5	R	580	28	FKI
80	5	18	16850	S12 E35	239	5300	3.5	21457	S13 E28	250	(D)	5				
80	5	18	16850					21463	S18 E45		(AF)	1				
80	5	18	16850					21464	S14 E48		(AF)	1				
80	5	19	16850					21457	S13 E14	251	(BP)	5				
80	5	19	16850					21464	S13 E25		(AF)	2				
80	5	20	16850	S13 W01	248	5600	3.5	21457	S13 E00	252	(BP)	4				
80	5	20	16850					21473	S16 E18		(AF)	2				
80	5	20	16850					21464	S14 E10		(AF)	2				
80	5	24	16850					21457	S15 W47	245	(BF)	4				
80	5	25	16850	S13 W65	248	2700	3.0	21457	S13 W65	250	B	2	B	130	3	DSO
80	5	26	16850					21457	S10 W80	253	AP	1	B	40	1	DSO

REGIONS OF SOLAR ACTIVITY

MAY 1980

HALE REGION 16854 CMP DATE 21.1 RETURN OF REGION 16788 ROTATIONS 3 AND 7.

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	5	16	16854	N13 E59	243	900	2.5									
80	5	17	16854	N10 E45	244	1100	3.5									
80	5	18	16854	N10 E32	242	900	3.0									
80	5	20	16854	N13 E03	244	1400	3.0									
80	5	25	16854	N14 W63	244	600	2.0									

HALE REGION 16853 CMP DATE 21.4 RETURN OF THE TRAILING PART OF REGION 16787 ROTATION 2

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	5	16	16853	N23 E62	240	200	3.0									
80	5	17	16853	N22 E49	240	400	3.0									
80	5	18	16853	N23 E34	240	200	3.0									
80	5	20	16853	N21 E07	240	200	3.0	21472	N21 E09	243	B	1				

HALE REGION 16856 CMP DATE 21.7 RETURN OF THE TRAILING PART OF REGION 16785 ROTATION 3

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	5	16	16856	S35 E62	240	200	3.0									
80	5	17	16856	S35 E52	237	300	3.0									
80	5	18	16856	S35 E37	237	300	2.5									
80	5	20	16856	S35 E10	237	300	3.0									
80	5	25	16856	S36 W50	231	100	2.5									

HALE REGION 16857 CMP DATE 21.7 RETURN OF PART OF THE SOUTHERN EDGE OF REGION 16788 ROTATIONS 3 AND 7

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	5	16	16857	N06 E67	235	100	2.5	21459	N08 E67	238	(AP)	3				
80	5	17	16857	N06 E55	234	200	2.5	21453	N09 E55	236	(AP)	4				
80	5	18	16857	N07 E47	227	300	2.0	21459	N09 E41	237	(AP)	4				
80	5	19	16857					21459	N07 E26	239	(AP)	4	B	20	4	CSO
80	5	20	16857	N07 E11	236	500	3.0	21459	N09 E14	238	(AP)	3	B	10	2	AXX
80	5	25	16857	N10 W56	237	100	2.5									

HALE REGION 16855 CMP DATE 23.0

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	5	16	16855	S33 E75	227	1300	3.5	21458	S31 E72	233	(BP)	2	R	40	1	HSX
80	5	17	16855	S33 E61	228	2600	3.0	21456	S30 E63	228	(B)	4	R	40	4	CSO
80	5	18	16855	S33 E50	224	2500	4.0	21452	S30 E50	228	(BP)	3	B	60	3	CSO
80	5		16855					21465	S36 E57	221	(AF)	2				
80	5	19	16855					21458	S30 E35	230	(BP)	3	B	0	1	AXX
80	5	20	16855	S33 E25	222	3200	4.0	21458	S30 E24	228	(BP)	3	B	20	9	CSO
80	5	21	16855						S32 E19				B	10	1	AXX
80	5	25	16855	S32 W39	220	2000	3.0									

HALE REGION 16859 CMP DATE 23.2

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	5	18	16859	N16 E58	216	800	3.5	21466	N17 E63	215	(BF)	3				
80	5	19	16859					21466	N16 E49	216	(BF)	4	B	230	21	DSO
80	5	20	16859	N16 E31	216	1700	3.5	21465	N16 E35	217	(BF)	4	B	100	26	DKI
80	5	21	16859						N15 E23				B	260	23	DKO
80	5	22	16859						N15 E07				B	360	57	EKI
80	5	23	16859						N15 W04				B	270	33	EAI
80	5	24	16859					21466	N17 W20	218	(B)	4	B	210	12	EAI
80	5	25	16859	N17 W37	218	2800	2.5	21466	N17 W33	218	(B)	4	B	220	12	EKI
80	5	26	16859					21466	N17 W48	221	(BP)	5	B	310	13	EMI
80	5	27	16859					21466	N17 W60	219	(AP)	5	B	100	6	DSO
80	5	28	16859						N19 W77				B	70	1	HSX

REGIONS OF SOLAR ACTIVITY

MAY 1980

HALE REGION 16861 CMP DATE 23.7

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	5	18	16861	S13 E63	211	400	2.5									
80	5	20	16861	S13 E37	210	400	3.5	21474	S11 E39		(D)	2				

HALE REGION 16858 CMP DATE 23.9

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	5	17	16858					21462	N26 E78	213	(AP)	3				
80	5	18	16858	N24 E62	212	700	3.0	21462	N25 E64	214	(AP)	3				
80	5	19	16858					21462	N25 E49	216	(AP)	3	B	10	1	HRX
80	5	20	16858	N24 E36	211	1100	3.5	21462	N25 E37	215	(AP)	4	B	30	2	CSO
80	5	21	16858						N23 E26				B	20	3	BXO
80	5	22	16858						N23 E11				B	30	9	BXO
80	5	23	16858						N26 E00				B	10	1	AXX
80	5	24	16858					21462	N25 W15	213	(AP)	3	B	10	1	AXX
80	5	25	16858	N25 W27	208	800	2.5	21462	N26 W29	214	(B)	3	B	30	3	BXO
80	5	26	16858					21462	N27 W42	215	(AP)	3	B	30	2	BXO
80	5	28	16858						N34 W73				B	30	4	BXO

HALE REGION 16860 CMP DATE 24.5

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	5	18	16860	S23 E73	201	2600	3.5	21468	S22 E77	201	(AP)	3				
80	5	19	16860					21468	S22 E62	203	(BP)	4				
80	5	20	16860	S23 E47	200	3700	4.0	21468	S23 E50	202	(BP)	4				
80	5	22	16860						S24 E21				B	30	5	HAX
80	5	24	16860					21468	S23 W04	202	(BP)	4				
80	5	25	16860	S23 W19	200	3800	3.0	21466	S22 W18	203	AP	3	B	40	3	CAO
80	5	26	16860					21466	S15 W34	207	(AP)	3	B	40	3	CAO
80	5		16860						S18 W30				B	30	5	BXO
80	5	27	16860					21468	S19 W45	204	AP	2	B	10	1	AXX
80	5	29	16860	S23 W65	196	700	3.5	21469	S23 W78	203	AP	1				

HALE REGION 16862 CMP DATE 25.3

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	5	16	16862	S07 E80	194	200	3.5	21467	S06 E78	200	(X)	2				
80	5	19	16862					21467	S07 E75	190	(B)	4				
80	5	20	16862	S07 E58	189	1200	3.5	21467	S08 E63	189	(B)	4				
80	5	21	16862						S08 E47				B	370	13	EKO
80	5	22	16862						S08 E35				B	490	16	EHO
80	5	23	16862						S07 E24				B	380	14	EHO
80	5	24	16862					21467	S08 E09	189	(B)	5	B	360	5	CKO
80	5	25	16862	S06 W06	189	1100	3.0	21467	S07 W04	189	(B)	5	B	340	4	DSO
80	5	26	16862					21467	S08 W15	188	(B)	5	B	390	6	DHO
80	5	27	16862					21467	S08 W30	189	(BP)	6	B	250	3	DAO
80	5	28	16862					21467	S08 W45	190	BP	4	B	270	4	DKO
80	5	29	16862	S06 W56	189	800	3.0	21467	S08 W55	188	(BP)	5	B	220	4	EAO
80	5	30	16862					21467	S07 W70	189	BP	4	B	150	2	DSO

HALE REGION 16863 CMP DATE 26.3

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	5	19	16863					21470	S12 E88	177	(X)	3				
80	5	20	16863	S13 E68	179	1600	3.5	21470	S12 E76	176	(B)	4				
80	5	24	16863					21470	S12 E22	176	(D)	6				
80	5	25	16863	S13 E04	177	3000	3.5	21470	S12 E07	178	(BP)	6	B	780	15	EKI
80	5	26	16863					21470	S12 W08	181	(BY)	6	B	890	22	EKI
80	5	27	16863					21470	S12 W21	180	(D)	6	B	770	13	EKI
80	5	28	16863					21470	S12 W35	180	BY	5	B	710	30	EKI
80	5	29	16863	S12 W45	176	2400	3.5	21470	S12 W47	180	(D)	6	B	630	18	DKC
80	5	30	16863					21470	S12 W64	183	BP	5	B	600	1	HKX
80	5	31	16863						S13 W77				R	420	2	CKO

REGIONS OF SOLAR ACTIVITY

MAY 1980

HALE REGION 16864 CMP DATE 26.5

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	5	19	16864					21469	S20 E88	177	(X)	3				
80	5	20	16864	S22 E74	173	1400	4.0	21469	S20 E75	177	(AP)	4				
80	5	24	16864					21469	S20 E22	176	(BP)	6				
80	5	25	16864	S22 E07	174	3800	3.5	21469	S19 E08	177	(BP)	6	B	690	8	DKI
80	5		16864						S22 W02				B	30	2	CSO
80	5	26	16864					21469	S19 W06	179	(BP)	5	B	640	14	EKI
80	5		16864						S25 E01				B	20	2	BXO
80	5	27	16864					21469	S19 W17	176	(BP)	6	B	610	13	DKI
80	5	28	16864					21469	S20 W32	177	BY	5	B	560	30	DKI
80	5	29	16864	S22 W42	173	3500	3.5	21469	S20 W43	176	(D)	6	B	480	41	DKI
80	5	30	16864					21469	S20 W57	176	BP	5	B	460	5	CKO
80	5	31	16864						S21 W71				R	410	3	DKC
80	6	1	16864	S23 W80		1000	3.0	21469	S19 W85		X	2	A	270	2	HKX

HALE REGION 16865 CMP DATE 28.2 RETURN OF REGION 16802 ROTATION 2

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	5	24	16865					21477	S17 E43	155	(AP)	3				
80	5	25	16865	S17 E26	153	5000	3.0	21477	S16 E30	155	(B)	3	B	50	3	CAO
80	5	26	16865					21477	S16 E16	157	(B)	4	B	100	6	CAO
80	5		16865						S20 E12				B	20	2	BXO
80	5	27	16865					21477	S15 E05	154	(BF)	4	B	60	8	CSO
80	5		16865					21480	S23 E03	156	(AP)	3	B	20	2	CSO
80	5	28	16865					21477	S16 W09	154	BF	3	B	50	4	DAO
80	5		16865						S20 W09				B	30	6	BXI
80	5		16865					21480	S22 W09	154	AP	2				
80	5		16865					21485	S24 E12	133	AP	1				
80	5	29	16865	S16 W28	151	3900	3.0	21477	S16 W21	154	(AP)	4	B	20	4	AXX
80	5		16865					21480	S23 W24	157	(B)	4	B	10	2	BXO
80	5		16865					21486	S19 W10	143	B	3				
80	5	30	16865					21477	S17 W33	152	AP	2	B	20	2	AXX
80	5	31	16865						S19 W46				R	50	3	HRX
80	6	1	16865	S18 W56		2100	3.0	21477	S17 W60		(AP)	2				
80	6	2	16865	S19 W67		1200	2.5									
80	6	3	16865	S18 W75		300	2.5									

HALE REGION 16866 CMP DATE 28.3 NEW REGION IN THE LOCATION OF REGIONS 16801 AND 16799

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	5	24	16866					21476	N09 E47	151	(B)	4				
80	5	25	16866	N08 E29	152	2300	3.0	21476	N09 E33	152	(B)	4	B	140	6	EKO
80	5	26	16866					21476	N10 E22	151	(BF)	4	B	230	15	ESI
80	5	27	16866					21476	N10 E08	151	(B)	5	B	280	15	ESI
80	5	28	16866					21476	N10 W07	152	B	4	B	250	28	EAI
80	5	29	16866	N10 W20	151	2500	3.0	21476	N10 W19	152	(B)	5	B	230	16	EAO
80	5	30	16866					21476	N10 W36	155	(BF)	5	B	190	11	EAO
80	5	31	16866						N09 W46				R	160	10	EAO
80	6	1	16866	N12 W58		1700	3.0	21476	N10 W60		(BF)	3	B	110	7	CAO
80	6	2	16866	N12 W70		1200	3.0	21476	N09 W67		(AF)	3	A	40	2	CRO
80	6	3	16866	N12 W80		300	2.5									

HALE REGION 16867 CMP DATE 31.0

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	5	24	16867					21478	S09 E85	113	AP	2				
80	5	25	16867	S12 E68	113	2000	4.0	21478	S11 E73	112	(BP)	4	B	330	2	CHO
80	5	26	16867					21478	S12 E59	114	(BY)	5	B	360	9	ESI
80	5	27	16867					21478	S10 E45	114	(BY)	5	B	430	16	EHI
80	5	28	16867					21478	S10 E30	115	BY	4	B	500	43	EHI
80	5	29	16867	S12 E17	114	4200	3.5	21478	S10 E18	115	(D)	5	B	300	71	EHI
80	5	30	16867					21478	S11 E05	114	(BP)	5	B	100	19	ESI
80	5	31	16867						S11 W07				R	480	49	EAI
80	6	1	16867	S12 W23		3100	4.0	21478	S10 W24		(D)	5	B	520	59	EKI
80	6	2	16867	S10 W37		3500	4.6	21478	S10 W37		(BY)	5	B	630	49	EKI
80	6	3	16867	S10 W49		2800	4.0	21478	S10 W53		(BY)	5	B	620	28	EKI
80	6	4	16867	S11 W65		2800	3.5	21478	S09 W66		(D)	4	B	990	28	EKI
80	6	5	16867	S10 W76		1200	3.5	21478	S10 W78		(B)	3	B	750	16	EKI

REGIONS OF SOLAR ACTIVITY

MAY 1980

HALE REGION 16869 CMP DATE 31.6

				CALCIUM		PLAGE DATA			SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	5	27	16869						21481	N18	E45	114	B	2	B	10	1	AXX
80	5	28	16869	N15	E15	116	500	3.0										
80	6	1	16869	N17	W37		200	3.0										
80	6	2	16869	N18	W42		300	2.5	21492	N19	W42		(B)	1				
80	6	3	16869	N1!	W54		200	2.5										
80	6	4	16869	N1*	W70		100	2.5										

HALE REGION 16868 CMP DATE 31.7 RETURN OF REGION 16868 ROTATION 3

				CALCIUM		PLAGE DATA			SUNSPOT DATA									
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	5	25	16868	N12	E60	113	900	2.5	21479	N11	E77	108	AP	2	B	40	1	AXX
80	5	26	16868						21479	N11	E65	108	(AP)	4	B	190	1	HHX
80	5	27	16868						21479	N11	E52	107	(AP)	6	B	190	1	HSX
80	5	28	16868						21479	N11	E37	106	AP	4	B	130	1	HSX
80	5	29	16868	N12	E25	106	1000	3.0	21479	N12	E25	108	(AP)	6	B	90	2	HSX
80	5	30	16868						21479	N12	E12	107	(AP)	5	B	480	1	HSX
80	5	31	16868							N12	W01				R	120	1	HSX
80	6	1	16868	N12	W15		400	3.0	21479	N12	W14		(AP)	4	A	100	1	HSX
80	6	2	16868	N13	W28		300	2.5	21479	N12	W28		(AP)		S			
80	6	3	16868	N13	W42		300	2.5	21479	N12	W42		(AP)	4	A	80	1	HSX
80	6	4	16868	N13	W57		200	2.5	21479	N12	W55		(AP)	5	A	80	1	HSX
80	6	5	16868	N13	W68		100	2.5	21479	N12	W68		(AP)	3	A	80	1	HSX
80	6	6	16868	N10	W77		100	2.5	21479	N12	W83		AP	2	A	60	1	HSX

NOTE: NO CALCIUM SPECTROHELIOGRAMS WERE SECURED AT THE MT WILSON OBSERVATORY ON MAY 1, 9-15, 21-24, 26, 27 AND 31, 198
NO SUNSPOT OBSERVATIONS WERE MADE AT MT WILSON ON MAY 1, 9, 10, 12, 14, 15, 21-23, AND 31, 1980.

CONTIGUOUS PLAGES FOR MAY: NONE.

DAILY CALCIUM PLAGE INDEX

MAY 1980

YR	MO	DAY	INDEX	YR	MO	DAY	INDEX	YR	MO	DAY	INDEX
80	5	1	*	80	5	11	*	80	5	21	*
80	5	2	39.9	80	5	12	*	80	5	22	*
80	5	3	45.0	80	5	13	*	80	5	23	*
80	5	4	43.1	80	5	14	*	80	5	24	*
80	5	5	56.7	80	5	15	*	80	5	25	72.6
80	5	6	65.5	80	5	16	26.2	80	5	26	*
80	5	7	60.9	80	5	17	44.3	80	5	27	*
80	5	8	56.2	80	5	18	42.5	80	5	28	*
80	5	9	*	80	5	19	*	80	5	29	67.2
80	5	10	*	80	5	20	71.0	80	5	30	*

* NO OBSERVATIONS

SUDDEN IONOSPHERIC DISTURBANCES

MAY 1980

DAY	UNIVERSAL TIME START	END	MAX	IMP	WIDE SPREAD INDEX	NUMBER OF STATION REPORTS BY TYPE SWF	SCNA	SEA	SPA	LF-SPA	SES	SFD	KNOWN FLARE	HALE REGION
01	0048	0212	0056	1-	3	1	0	0	2	0	0	0	*	
01	0323	0357	0334	1-	1	0	0	0	1	0	0	0	0331	16818
01	0938	1020	0957	1-	1	0	0	0	1	0	1	0	*	
01	1408	1450	1427	1-	1	0	0	0	1	0	1	0	*	
01	1555	1611D	1611	2-	5	0	0	3	1	0	4	0	1555	16820
01	1624	1958	1637	2-	5	3	0	4	1	0	5	0	1622	16818
01	1916	2052	1920	2	5	1	0	0	2	0	4	0	1907	16818
01	2057	2230	2114	2	5	0	0	0	2	0	4	0	2104	16785
02	0024	0106	0037	1-	1	0	0	0	2	0	0	0	0034	16812
02	0532	0622	0548	1-	1	0	0	0	1	0	0	0	*	
02	0940	1021	0952	1	5	1	0	4	2	0	2	0	0944E	16815
02	1129	1132D	1132	1	1	0	0	0	1	0	1	0	1130	16787
02	1452	1611	1508	1	5	1	0	2	1	0	5	0	1445	16802
02	1750	1818	1759	1-	3	0	0	0	1	0	3	0	1747	16802
02	2048	2126	2054	1-	5	0	0	0	1	0	2	0	2047	16802
02	2253	2327	2302	1-	5	0	0	0	1	0	1	0	2302	16805
02	2348	0130	0024	1-	1	0	0	0	1	0	0	0	2348	16812
03	0008	0040	0016	1	5	1	0	0	0	0	0	0	NF	
03	0204	0317	0210	1+	1	2	0	0	2	0	0	0	0200	16802
03	0749	0922	0811	2	1	0	0	4	1	0	2	0	0800	16802
03	1021	1044	1028	1	1	0	0	1	0	0	0	0	*	
03	1240	1330D	1330	2	5	2	0	2	1	0	5	0	1239	16815
03	1438	1508	1446	1	1	0	0	1	0	0	0	0	NF	
03	1624	1628D	1628	1-	3	0	0	0	1	0	4	0	1620	16815
03	1753	1942	1807	1+	3	0	0	0	1	0	4	0	1749	16802
03	2123	2205	2130	1-	5	0	0	0	1	0	2	0	*	
03	2217	2315D	2224	1	5	0	0	0	1	0	2	0	2215	16802
03	2315E	0016	2321	1	5	0	0	0	1	0	1	0	2315	16802
04	0040	0133	0045	1-	1	0	0	0	2	0	0	0	0041	16805
04	0612	0721	0617	1-	1	0	0	0	2	0	0	0	NF	
04	1203	1257	1215	1	5	0	0	1	1	0	2	0	NF	
04	1459	1504D	1504	1-	5	0	0	2	1	0	4	0	1508	16802
04	1620	1657	1629	1-	3	0	0	1	1	0	4	0	NF	
04	2102	2125D	2108	1-	5	0	0	0	1	0	2	0	2105	16815
04	2125E	2150	2132	1-	1	0	0	0	1	0	0	0	NF	
04	2210	2234	2216	1-	1	0	0	0	1	0	0	0	2206	16815
04	2336	0013	2341	1-	1	0	0	0	1	0	0	0	2335	16802
05	0627	0713	0634	1-	5	0	0	0	1	0	1	0	0624E	16815
05	1025	1045	1032	1+	1	0	0	1	0	0	0	0	NF	
05	1445	1538	1455	1-	5	0	0	0	1	0	4	0	NF	
06	0607	0628D	0628	1-	5	0	0	1	1	0	0	0	0610	16815
06	0802	0845	0804	1-	1	0	0	0	1	0	0	0	0800	16802
06	0939	1012	0952	1+	1	0	0	3	0	0	0	0	0937	16802
06	1814	1842	1822	1-	3	0	0	0	1	0	3	0	1811	16802
06	2248	2318	2257	1-	1	0	0	0	1	0	0	0	2244	16812
07	0405	0445	0409	1-	1	0	0	0	1	0	0	0	NF	
07	0617	0715	0622	1	5	0	0	0	1	0	1	0	*	
07	1124	1215	1131	1-	1	0	0	0	1	0	1	0	1122	16815
07	1213	1242	1227	1	1	0	0	1	0	0	0	0	1222	16815
07	1319	1445	1327	2-	5	3	0	4	1	0	6	0	1318	16815
07	1458	1555	1506	1	5	0	0	3	1	0	5	0	1456	16815
07	1717	1810	1725	1-	3	0	0	0	1	0	4	0	NF	
07	2049	2116	2051	1-	5	0	0	0	1	0	3	0	2047	16815
07	2323	0014	2332	1-	5	0	0	0	1	0	1	0	2322	16815
08	0057	0224	0102	2	5	2	0	0	2	0	1	0	0056	16815
08	0420	0446	0424	1-	5	0	0	0	3	0	1	0	0419	16815
08	1128	1310	1139	2-	5	2	0	4	2	0	5	0	1127	16815
08	1342	1353D	1353	1+	5	2	0	3	1	0	6	0	1341	16815
08	1938	2030	1941	1	5	1	0	0	2	0	3	0	1936	16815
08	2125	2218	2145	1-	5	0	0	0	1	0	2	0	*	
09	0541	0614	0547	1-	1	0	0	0	1	0	0	0	0535	16815
09	0708	0947	0718	3	5	3	0	4	1	0	2	0	0710	16815
09	1118	1141	1129	1-	1	0	0	0	1	0	1	0	1119	16810
09	1526	1548	1533	1-	1	0	0	0	1	0	1	0	1522	16836
10	1131	1258	1143	1+	5	2	0	2	2	0	5	0	1135	16838
10	1300	1333	1309	1	1	0	0	3	0	0	0	0	NF	
10	1758	1816	1803	1-	3	0	0	0	1	0	4	0	1757	16838
10	1953	2100	1958	1-	3	0	0	0	0	0	3	0	1952	16838
11	0411	0600	0421	2	3	2	0	0	2	0	0	0	*	
11	0821	0858	0829	1-	5	0	0	0	1	0	1	0	NF	

SUDDEN IONOSPHERIC DISTURBANCES

MAY 1980

DAY	UNIVERSAL TIME				WIDE SPREAD INDEX	NUMBER OF STATION REPORTS BY TYPE							KNOWN FLARE	HALE REGION
	START	END	MAX	IMP		SWF	SCNA	SEA	SPA	LF-SPA	SES	SFD		
11	1048	1115	1055	1-	1	0	0	0	0	0	1	0	1047	16838
11	1150	1224	1203	1-	5	0	0	0	1	0	2	0	1145	16838
11	1253	1410	1307	2-	5	2	0	4	1	0	5	0	1253	16815
11	1410	1416D	1416	1	1	0	0	0	0	0	1	0	1401	16838
11	1512	1640	1528	1	5	2	0	3	1	0	5	0	1512	16838
11	1655	1820	1703	1	5	0	0	2	1	0	4	0	1655	16838
11	1854	1930	1859	1-	3	0	0	0	0	0	3	0	1854	16838
11	2146	2313	2154	1-	5	0	0	0	1	0	3	0	2130	16815
11	2341	0130D	2346	2	5	2	0	0	2	0	2	0	2342	16815
12	0254	0340	0257	1-	3	1	0	0	2	0	0	0	*	
12	1300	1430	1333	1	1	0	0	2	0	0	0	0	1327	16839
12	1340	1347D	1347	1	1	0	0	0	1	0	1	0	1340	16815
12	1423	1501	1432	1	5	0	0	0	1	0	4	0	1420	16839
12	1739	1808	1745	1-	1	0	0	0	1	0	3	0	1736	16839
12	2345	2345D		1-	1	0	0	1	0	0	0	0	2342	16815
13	1244	1417	1255	1	1	0	0	2	0	0	0	0	*	
14	0438	0511	0443	1-	1	0	0	0	1	0	0	0	*	
14	0854	0924	0858	1-	1	0	0	0	1	0	0	0	*	
14	1258	1438	1313	2+	5	2	0	5	1	0	6	0	1258	16850
14	1750	1829	1755	1-	3	0	0	0	1	0	2	0	1749E	16846
14	1917	2020	1927	1-	5	0	0	0	2	0	3	0	1905	16838
15	0102	0140	0106	1-	1	0	0	0	2	0	0	0	0102	16839
15	1252	1333	1258	1-	1	0	0	0	1	0	1	0	1250E	16839
15	1555	1630	1558	1-	1	0	0	0	1	0	1	0	1544	16850
15	2009	2126	2027	1	1	0	0	0	1	0	0	0	2002E	16846
15	2030	2145	2050	1	1	0	0	0	0	0	2	0	2053E	16850
15	2355	0044	0017	1-	1	0	0	0	2	0	0	0	2355	16846
16	0134	0212	0139	1-	1	0	0	0	2	0	0	0	0123	16846
16	0304	0403	0321	1-	1	0	0	0	2	0	0	0	NF	
16	1307	1313D	1313	1-	3	0	0	2	1	0	1	0	NF	
16	1343	1406	1352	1-	3	0	0	1	1	0	1	0	1343E	16851
16	1543	1624	1559	1-	3	0	0	2	1	0	1	0	NF	
16	2205	0000	2236	1	3	0	0	0	1	0	2	0	2207	16850
16	2237E	2352	2237	1-	1	0	0	0	1	0	0	0	2233E	16852
17	0142	0330	0216	1	3	1	0	0	1	0	0	0	*	
17	0204	0351	0224	1	3	1	0	0	1	0	0	0	*	
17	0343	0405U	0346	1+	1	1	0	0	0	0	0	0	*	
17	0540	0914	0738	1	3	0	0	0	2	0	1	0	0537E	16850
17	0634E	0723	0643	1-	3	0	0	0	1	0	1	0	NF	
17	0733	0920	0740	3	5	2	0	5	1	0	2	0	0734	16851
17	1010	1128	1024	1	5	2	0	2	2	0	3	0	1007E	16852
18	0105	0200	0115	2+	5	2	0	0	1	0	1	0	*	
18	0819	1000	0837	1-	3	0	0	3	1	0	1	0	0818	16850
18	1228	1243D	1243	1-	1	0	0	0	1	0	1	0	*	
18	1255	1334	1303	1-	1	0	0	0	1	0	1	0	1254	16860
18	1346	1538	1401	1-	1	0	0	0	1	0	1	0	1345	16860
19	0538	0600	0542	1-	3	0	0	0	2	0	1	0	*	
19	0626	0707	0636	1-	1	0	0	0	1	0	0	0	0622	16846
19	1522	1554	1526	1-	3	0	0	0	1	0	3	0	1517	16864
19	1736	1808	1743	1-	3	0	0	0	1	0	3	0	*	
19	1800	1843	1806	3	1	0	0	1	0	0	0	0	NF	
20	0217	0350	0232	1	1	0	0	0	2	0	0	0	*	
20	0627	0700	0636	1-	3	0	0	0	2	0	1	0	NF	
20	0727	0810	0740	1-	5	0	0	0	1	0	1	0	*	
20	1400	1900	1432	2+	3	3	0	2	1	0	2	0	NF	
20	1959	2045	2006	1-	1	0	0	0	0	0	1	0	*	
21	0052	0145	0100	1-	1	0	0	0	1	0	0	0	*	
21	1113	1155	1123	1-	1	0	0	0	1	0	1	0	*	
21	1207	1237	1215	1-	1	0	0	0	1	0	1	0	*	
21	1449	1501D	1501	1-	5	0	0	2	1	0	5	0	1446	16863
21	2053	2338	2108	3	5	3	0	0	1	0	3	0	2051	16850
22	0559	0651D	0607	1-	5	1	0	1	2	0	1	0	0600	16863
22	0651E	0722	0658	1-	5	0	0	0	1	0	1	0	0654E	16850
22	1400	1428D	1428	1+	1	0	0	0	0	0	1	0	1416	16863
22	1500	1545	1516	1	1	0	0	0	0	0	1	0	1519	16850
22	2054	2342	2113	1	5	0	0	0	1	0	1	0	2054	16859
23	1118	1204	1122U	1	1	0	0	1	0	0	0	0	*	
23	1355	1414D	1414	1-	5	0	0	2	1	0	4	0	NF	
23	1442	1545	1449	1-	3	0	0	2	1	0	2	0	1442	16864
23	2145	2300	2149	1	1	0	0	0	0	0	2	0	2143	16862

SUDDEN IONOSPHERIC DISTURBANCES

MAY 1980

DAY	UNIVERSAL TIME START	END	MAX	IMP	WIDE SPREAD INDEX	NUMBER OF STATION REPORTS BY TYPE SWF	SCNA	SEA	SPA	LF-SPA	SES	SFD	KNOWN FLARE	McMATH REGION
24	0048	0140	0057	1-	3	0	0	0	2	0	0	0	0047	16859
24	0622	0816	0657	1-	1	0	0	0	1	0	0	0	0645E	16850
24	0802	0907	0840	1-	1	0	0	0	1	0	1	0	0845E	16862
24	1029	1047D	1047	1-	1	0	0	0	1	0	1	0	*	
24	1104	1207	1113	1-	1	0	0	0	1	0	1	0	1103	16863
25	0036	0321	0142	1	3	0	0	0	2	0	0	0	*	
25	0127E	0304	0142	1	3	0	0	1	1	0	0	0	0128E	16850
25	0551	0704	0600	1	3	0	0	0	2	0	0	0	0550	16862
25	1239	1320	1249	1-	1	0	0	0	1	0	1	0	*	
25	1331	1345D	1345	1-	1	0	0	0	1	0	1	0	1334	16863
25	1412	1435	1420	1-	1	0	0	0	1	0	1	0	1411	16863
25	1552	1622	1600	1-	1	0	0	0	1	0	1	0	1550	16859
25	1729	1813	1738	1-	3	0	0	0	1	0	4	0	1727	16867
25	2354	0041	0012	1-	1	0	0	0	1	0	0	0	0002E	16863
26	0738	0825	0753	1	1	0	0	2	0	0	0	0	0736	16863
26	0800	0840	0805	1-	1	0	0	0	0	0	1	0	0753	16865
26	0909	1000	0925	1	1	0	0	1	0	0	0	0	*	
26	1025	1100	1034	1-	1	0	0	0	0	0	1	0	*	
26	1153	1202D	1202	1-	1	0	0	0	1	0	1	0	*	
26	1211	1245	1222	1-	3	0	0	1	1	0	2	0	*	
26	1229	1358	1243	1-	3	1	0	1	1	0	1	0	*	
26	1425	1437D	1437	1-	5	1	0	3	1	0	6	0	*	
26	1523	1613	1534	1-	3	0	0	0	1	0	4	0	*	
26	1730	1829	1739	1-	3	0	0	0	1	0	4	0	1730	16866
27	0247	0324	0248	2+	1	1	0	0	0	0	0	0	*	
27	0507	0528	0520	1-	1	0	0	0	1	0	0	0	*	
27	0600	0626	0604	1-	1	0	0	0	2	0	0	0	0600E	16867
27	0704	0740	0713	1-	3	0	0	0	1	0	1	0	0702	16865
27	0820	0856	0825	1-	3	0	0	0	2	0	1	0	0821	16863
27	1602	1649	1609	1-	5	1	0	0	1	0	4	0	1553	16865
27	2104	2140	2110	1-	3	0	0	0	1	0	2	0	2105	16867
27	2350	0048	0012	1-	1	0	0	0	1	0	0	0	2334E	16867
28	0138	0209	0141	1+	1	1	0	0	0	0	0	0	*	
28	0211	0318	0221	2+	3	1	0	0	1	0	0	0	0214	16860
28	0503	0524	0506	1-	1	0	0	0	1	0	0	0	*	
28	1114	1151	1224	1-	1	0	0	0	1	0	1	0	*	
28	1317	1415	1330	1-	3	1	0	0	0	0	4	0	1312	16866
28	1335E	1452	1335	1-	1	0	0	0	1	0	1	0	NF	
28	1553	1609D	1609	1	3	2	0	0	1	0	4	0	1553	16860
28	1658	1711D	1711	1-	3	0	0	0	1	0	4	0	1655	16867
28	1713	1821	1729	2	5	3	0	0	1	0	1	0	1712	16860
28	1946	2106	1954	2+	5	3	0	0	2	0	4	0	1945	16860
28	2153	2320	2211	2	5	1	0	0	1	0	3	0	2153	16860
28	2337	0053	2346	2+	5	2	0	0	2	0	3	0	2334	16860
29	0338	0652	0520	1	1	0	0	0	2	0	0	0	*	
29	0504	0654	0521	2+	5	2	0	1	1	0	1	0	0505	16862
29	0723	0756D	0731	1-	1	0	0	0	1	0	0	0	NF	
29	0756E	0849	0807	1-	1	0	0	0	1	0	0	0	0756	16866
29	2352	0024D	0000	1-	1	0	0	1	1	0	0	0	NF	
30	0027	0050	0033	1-	1	0	0	0	1	0	0	0	0027	16860
30	0120	0152	0124	1-	3	0	0	1	2	0	0	0	NF	
30	1045	1213	1100	1-	1	0	0	0	1	0	1	0	1046E	16864
31	0743	0826	0748	1-	1	0	0	0	1	0	0	0	0744E	16867
31	1606	1648	1614	1	1	0	0	2	0	0	0	0	1551	16865

PERIODS OF NO OBSERVATIONS:

DATE	TIME (UT) AND STATION		DATE	TIME (UT) AND STATION	
01	0935-0949	TA	18	0108-0155	TA
06	1005-1345	UM	20	1000-1359	UM
13	1000-1400	UM	27	1000-1400	UM
16	0400-0500	TA			

STATIONS REPORTING FOR MAY 1980:

Glenorchy, Tasmania, Australia	SWF	Preston, UK	SEA
Hiraiso, Japan	SWF	Sao Paulo, Brasil	SPA, SES
Hobart, Tasmania, Australia	SEA	Sofia, Bulgaria	SES
Huancayo, Peru	SWF	St. Cloud, Minnesota, USA	SES
Inubo, Japan	SPA	Trenton, New Jersey, USA	SES
Kasugai, Japan	SPA	Upice, Czechoslovakia	SEA
Littleton, Colorado, USA	SES	Vsetin, Czechoslovakia	SEA
Luchow, GFR	SWF	Zilina, Czechoslovakia	SEA
Panska Ves, Czechoslovakia	SEA, SES, SWF		

SIDs BY HALE REGION

MAY 1980

DAY	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
REGION																															
16785	1																														
16787		1																													
16802		3	5	2		3																									
16805		1		1																											
16810									1																						
16812		2				1																									
16815		1	2	2	1	1	6	5	2		3	2																			
16818	3																														
16820	1																														
16836									1																						
16838										3	6			1																	
16839												3			2																
16846														1	2	1			1												
16850														1	2	1	1	1			1	2		1	1						
16851																1	1														
16852																1	1														
16859																						1		1	1						
16860																		2										6		1	
16862																							1	1	1				1		
16863																					1	2		1	3	1	1				
16864																			1				1							1	
16865																										1	2				1
16866																										1		1	1		
16867																									1		3	1			1
NO FLARE			2	4	2		2			1	1					3	1		1	2			1					1	2	1	
NO FLARE PATROL	3	1	2				1	1			1	1	1	2			3	2	2	3	3		1	1	2	7	2	3	1		
EVENT TOTALS	8	9	11	9	3	5	9	6	4	4	11	6	1	5	6	7	7	5	5	5	5	5	4	5	9	10	8	12	5	3	2

PIONEER XII

MAGNETIC FIELD MAGNITUDES

MAY 1980

DATE	TIME	BMAG
05/01/80	19:59:53	7.33
05/02/80	19:59:14	11.16
05/03/80	19:51:25	10.85
05/04/80	19:48:18	6.95
05/05/80	19:42:11	28.05
05/06/80	19:40:09	3.20
05/07/80	19:34:34	14.42
05/08/80	19:27:56	12.82
05/09/80	19:26:46	10.03
05/10/80	19:20:07	6.12
05/11/80	19:13:56	6.74
05/12/80	19:07:56	11.00
05/13/80	19:04:29	6.76
05/14/80	18:56:58	6.04
05/15/80	19:04:15	6.22
05/16/80	19:11:44	5.02
05/17/80		----
05/18/80	19:01:47	8.47
05/19/80	19:04:18	10.95
05/20/80		----
05/21/80	19:05:36	9.92
05/22/80		----
05/23/80	19:19:03	14.95
05/24/80	19:25:51	9.72
05/25/80	19:30:22	11.63
05/26/80	19:36:47	13.18
05/27/80	19:43:25	12.63
05/28/80	19:50:08	13.59
05/29/80	21:41:31	12.39
05/30/80	20:04:25	12.90
05/31/80	20:06:33	8.57

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

MAY 1980

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
01	0000	0729	CULG	0000	0729								IN,W
			CULG				0016.5	0017	2				IIIG
			CULG				0018.5	0019	2				IIIG
			PALE				0022.9	0024.0	1				III
			CULG	0023	0024	2	0023	0024	1				IIIG
			CULG	0033.5	0034	1							DCIM
			CULG				0152.5	0155					IIIG,W
			CULG	0153.5		1	0153.5		1				IIIB
			CULG	0212	0212.5	1							DCIM
			CULG				0258	0258.5	1				IIIG
			LEAR				0303.5	0304.6	1				CONT
			CULG	0327	0327.5	1							IIIG
			CULG	0331	0331.5	1							IIIG
	0442	1318	WEIS				0501.1	1703.5	2				IIIN
			CULG	0550.5	0551.5	2	0550.5	0551	1				IIIG
	1326	1757	WEIS				0550.7	0551.4	2				IIIG
	0510	1725	BLEN	0550.7	0551.4	2	0550.7	0551.4	2				IIIGG
			LEAR				0559.7	0600.0	1				CONT
			BLEN	0619.5	0623.5	2	0619.5	0623.5	2				IIIGGU
			CULG	0619.5	0620								IIIG,W
			WEIS				0619.7	0619.9	1				U
			WEIS				0622.7	0623.5	2				IIIG
			CULG	0623	0623.5	1	0623.5	0624	1				IIIG
			CULG				0628	0720					IS,W
			CULG				0651	0657	1				I
			CULG				0658.5	0659	1				IIIG
			BLEN	0705.4	0705.8	2	0658.5	0705.8	2				IIIG,U
			WEIS				0705.5	0705.9	2				IIIG
			CULG	0706		2	0706		2				IIIB
			WEIS				0727.4	1651.0	1				IN
			BLEN	0856.8	0857.0	1							DCIM
			WEIS				0902.0	0902.7	2				IIIG
			BLEN				0902.1	0902.4	1				IIIG
			BLEN	0923.2	0923.8	1							DCIM
			BLEN				0924.5	1700	1				I,DC
			BLEN				1014.6	1014.7	1				IIIB
			WEIS				1126.2	1126.4	2				IIIG
			BLEN				1126.2	1126.4	2				IIIG
			BLEN	1205.0	1205.3	1	1205.0	1205.3	1				IIIG
	1250	2300	HARV				1311	2257	1				IN
			HARV				1318	1319	2				IIIG
			BLEN				1318.1	1318.8	2				IIIG
			SGMR				1319.7	1336.9	1				CONT
			BLEN				1331.7	1331.8	1				IIIG
			HARV				1332	2238	1				IIIN
			HARV				1401	1403	2				IIIG
			BLEN	1405.2	1408.0	1	1400.7	1419.9	2				IIIGG
			HARV				1408		2				IIIG
			HARV				1420		2				IIIG
			HARV				1458	1459	2				IIIG
			BLEN	1507.5	1507.8	1							DCIM
			SGMR				1519.4	1931.5	3				II
			SGMR				1557.8	1600.0	2				II
			WEIS				1557.9	1600.3	3				IIIG/V
			HARV				1558	1559	3	1558	1559	2	IIIG,V
			BLEN				1558.0	1559.1	2				IIIG
	0555	1800	DWIN	1621.0	1624.5	3							IIIG
			BLEN	1621.1	1651.7	3	1625.2	1651.7	2				DCIM
			WEIS				1621.2	1621.3	2				IIIG
			WEIS				1625.7	1625.9	1				IIIG
			HARV				1626	1635	2				IIIG
			HARV				1627	1638	2				II
			DWIN	1628.5	1632.0	1							IV
			WEIS				1634.3	1634.7	1				IIIG
			HARV				1649	1651	2				IIIG
			HARV				1703	1705	2				IIIG
			PALE				1827.2	1827.8	1				III
			HARV				1916	1940	3	1920	1931	3	II
			PALE				1919.3	1930.8	3				II
			SGMR				1920.5	1929.0	3				IV

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

MAY 1980

DAY	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
01	2029	2400	CULG	2035	2400								IN,W
			CULG				2045	2103					IS,W
			CULG				2049	2314					IIIN,W
			CULG	2158	2213	1							IIIS
			CULG	2219		1	2219		1				IIIB
			CULG	2220	2220.5	1							DCIM
02	0000	0729	CULG	0000	0729								IN,W
			CULG				0031	0037					I,W
			CULG	0049	0508								IIIN,W
			CULG	0104.5	0105.5	2							IIIG
			CULG				0109	0603					IIIN,W
			LEAR				0118.2	0118.6	1				CONT
			LEAR				0348.1	0348.3	1				III
			LEAR				0442.1	0442.3	1				III
			CULG	0501	0501.5	1							IIIG
	0441	1757	WEIS				0501.5	0501.7	2				IIIB
			BLEN	0501.5	0501.7	1	0501.5	0501.7	2				IIIG
			WEIS				0510.7	1720.0	2				IN
			CULG	0530	0530.5	2							IIIG
			BLEN	0530.1	0530.3	2							DCIM
	0549	1800	DWIN	0549.0	0551.0	2							IIIG
			BLEN	0549.1	0550.5	1							DCIM
			WEIS				0555.0	0603.0	2				IIIGG
			CULG				0557	0559	1				IIIG
			LEAR				0557.0	0559.0	1				V
			LEAR				0607.4	0607.6	1				III
			DWIN	0628.6	0629.0	2							IIIG
			BLEN	0628.6	0628.9	2							DCIM
			BLEN	0725.8	0726.5	2	0725.8	0726.5	2				IIIG
			WEIS				0804.7	0804.9	2				IIIG
			WEIS				0959.6	0959.8	2				IIIG
			WEIS				1125.1	1125.2	2				IIIB
			BLEN				1206.8	1221.5	2				IIIGG
			WEIS				1206.9	1207.3	2				IIIG
			WEIS				1221.6	1221.8	2				IIIG
			BLEN	1233.2	1235.5	2							DCIM
	0500	1725	BLEN	1240	1725 D	2	0500	1725 D	3				I,DC
	1255	2245	HARV				1256	1759	2				I
			HARV				1350	2137	2				IIIN
			BLEN	1418.5	1418.6	2							IIIU
			WEIS				1451.3	1454.2	1				IIIG
			WEIS				1629.6	1629.8	2				IIIB
			WEIS				1703.7	1707.2	1				IIIG
			HARV				1810	2245	1				I
			HARV				1816		2				IIIG
			HARV				2020		3				IIIG
	2029	2400	CULG	2036	2400								IS,W
			HARV				2047	2048	3				IIIG
			CULG	2047	2049	2	2047	2047.5	1				IIIGG
			CULG				2137	2349					IIIN,W
			CULG				2137.5		1				IIIB
			CULG				2304.5	2305					UNCLF,W
			CULG	2335.5		1	2335.5		1				IIIB
03	0000	0729	CULG	0000	0302								IN,W
			CULG				0001	0716					IIIN,W
			CULG				0033		1				IIIB
			LEAR				0145.0	0145.2	1				III
			CULG	0204.5	0206	1							DCIM
			CULG				0205	0729					IN,W
			CULG	0302	0729								IS,W
			CULG	0355.5	0356	1							IIIG
	0500	1515	BLEN	0500 E			0500 E						I,DC
	0439	0700	WEIS				0500.0	1740.0	2				IN,DC
	0721	1759	WEIS				0510.0	1754.2	2				IIIN
			BLEN				0524.5	0524.6	2				IIIG
			CULG				0524.5		1				IIIB
			BLEN				0602.5	0602.9	1				IIIG
			CULG				0602.5	0603	2				IIIG

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

MAY 1980

DAY	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS: DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
03			LEAR				0602.6	0603.1	1				V
			CULG				0711		1				IIIB
			BLEN	0800.4	0801.3	3	0800.4	0801.3	3				V
			LEAR				0800.5	0801.5	3				V
	0550	1730	DWIN	0808.4	0808.5	2							IIIG
			BLEN	1022.2	1022.4	3							IIIG
			BLEN				1042.9	1043.1	1				IIIG,U
			BLEN				1158.1	1224.2	3				IIIGG
			DWIN	1250.0	1409.0	2						IV	DCIM
			BLEN	1253	1410	3	1253	1410	3				IV,P
	1246	2300	HARV				1257	2300	3				IC
			WEIS				1258.7	1314.0	2			II	HARM
			HARV				1304	1305	2				IIIG
			HARV				1305	1312	2				UNCL
			WEIS				1305.0	1435.0	1				CONT
			HARV				1307	1405	3			IV	
			HARV				1344	1345	3				IIIGG
			HARV				1434	1435	2				IIIG
			BLEN				1437.3	1440.2	2				IIIG
			HARV				1440		3				IIIG
			BLEN				1450	1515 D	2				CONT
			HARV				1533		2	1533		1	IIIB
			DWIN	1551.2	1551.6	1						IV	DCIM
			HARV				1601	1602	2				IIIB
			DWIN	1607.0	1609.0	1						IV	DCIM
			DWIN	1619.0	1715.0	1						IV	F
			HARV				1624	1629	3	1625		2	IIIG,V
			PALE				1625.0	1625.1	1				III
			SGMR				1625.0	1625.2	2				V
			HARV				1638		2				IIIB
			HARV				1644	1645	2				IIIB
			HARV				1742	1743	2	1742	1743	2	IIIG
			PALE				1742.2	1742.7	2				III
			PALE				1751.8	1753.2	2				CONT
			HARV				1752	1753	2	1752	1753	2	IIIG,V
			HARV				1759		2				IIIG
			HARV				1831	1832	2	1831	1832	1	IIIB
			PALE				1831.4	1840.2	2				CONT
			HARV				1840		2	1840		1	IIIG
			HARV				1854	1855	2	1855		2	IIIG
			HARV				1905	1907	3	1905	1907	3	IIIG,V
			PALE				1905.2	1916.8	3				S
			HARV				1916	1917	2				IIIG
			HARV				1937		2				IIIG
			SGMR				2025.8	2026.0	2				III
			PALE				2025.8	2028.5	3				V
			HARV				2026		3				IIIB
	2029	2400	CULG	2037	2400	1	2038	2400	1				IS,DC
			HARV				2040		2				IIIB
			CULG				2040.5		2				IIIB
			CULG				2041	2226	1				IIIN
			CULG	2052	2232		2041	2400					IIIN,W
			HARV				2127	2128	2				IIIG
			PALE				2127.0	2226.2	2				S
			CULG	2127.5	2128.5	2	2127.5	2128	2				IIIG
			CULG				2132	2134	1				IIIGG
			HARV				2133		2				IIIG
			HARV				2152	2205	3				IIIGG
			CULG				2152.5	2153	2				IIIG
			CULG				2156	2157	3				IIIG
			CULG				2204	2205.5	3				IIIG
			HARV				2222	2227	2				IIIG
			CULG				2326.5	2327.5	1				IIIG
			LEAR				2326.7	2327.1	1				III
			LEAR				2339.3	2339.5	1				III
04			CULG				0000	0716					IIIN,W
	0000	0729	CULG	0000	0720		0000	0233					IS,W
			LEAR				0009.3	0050.7	2				S
			CULG				0012	0421	1				IIIN

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

MAY 1980

DAY	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
04			CULG				0012.5	0013	2	0012.5	0013	1	IIIB
			PALE				0012.8	0022.0	3				CONT
			CULG				0015	0016	1				IIIG
			CULG				0017.5	0018	3	0017.5	0018	2	IIIG
			CULG				0050	0050.5	1				IIIG
			LEAR				0112.6	0129.5	1				S
			LEAR				0129.5	0940.0	1				B
			CULG				0207	0208	1	0208	0208.5	1	IIIG
			CULG				0233	0520	1				IS,DC
	1410	1801	WEIS				0439.0	1800.0	2				IS,DC
			CULG				0440.5	0441.5	3	0441.5		1	IIIG
	0438	1405	WEIS				0445.0	1739.0	2				IIIN
			CULG				0448.5	0450	2	0449	0450	2	IIIG
			LEAR				0448.8	0450.2	2				CONT
			CULG				0520	0720					IS,W
	1054	1740	BLEN	1054 E	1740 D	3	1054 E	1740 D	3				I,NS,DC
			BLEN	1211.5	1214.0	2							DCIM
			WEIS				1215.0	1800.0	2				CONT
	1247	2342	HARV				1247	2342	3				IC,DC
			HARV				1313	2316	2				IIIN
			BLEN	1508.5	1512.3	2							DCIM
	0550	1830	DWIN	1824.0	1828.0	1							IV,SUNSET
			PALE				1843.9	1846.1	2				CONT
			HARV				1844	1845	2	1844	1845	2	IIIG
			HARV				2015		3				IIIG
	2029	2400	CULG	2037	2400	1							IS,C
			CULG				2037	2400	2				IS,C,DC
			CULG				2040	2400					IIIS,W
			CULG	2050	2052	2							IIIN
			HARV				2101	2102	2				IIIG
			CULG				2123.5	2125	2				IIIG
			HARV				2124		2				IIIG
			CULG				2129	2400	1				IIIN
			CULG				2138		2				IIIB
			CULG				2152		2				IIIB
			HARV				2203	2204	3				IIIG
			CULG	2203	2204	1	2203	2204	2				IIIG
			CULG				2315.5		2				IIIB
05			CULG				0000	0338					IIIS,W
	0000	0718	CULG	0000	0718	1	0000	0324	2				IS,C
			CULG				0011	0338	1				IIIN
			CULG				0134.5	0135	2				IIIG
			CULG	0135.5	0136	1	0135.5	0136.5	2				IIIG
			CULG				0300.5	0304	1				Z
			CULG				0302	0302.5	2				IIIG
			CULG				0324	0718	1				IS,C,DC
			CULG				0330		2				IIIB
			CULG				0338	0650	1				IIIS
			CULG				0401	0632	2				IIIN
	0436	1803	WEIS				0436.0	1803	3				IS,DC
			WEIS				0455.0	1801	2				IIIS
	0500	1740	BLEN	0500 E	1740 D	3	0500 E	1740 D	3				I,NS,DC
			BLEN	0525.3	0527.2	3							DCIM
	0545	1820	DWIN	0715.2		3							IIIB
			BLEN	0715.2	0715.8	3							DCIM
	1246	2245	HARV				1246	2245	3				I
			HARV				1307	1310	3				IIIGG,U
			WEIS				1308.4	1309.9	3				IIIGG
			BLEN				1309.2	1321.6	3				IIIGG
			HARV				1317	2245	2				IIIN
			WEIS				1319.9	1321.8	3				IIIGG
			HARV				1320	1322	2				IIIGG
			HARV				1404	1405	2				IIIG
			BLEN	1418.8	1444.5	3	1418.8	1425.2	3				IIIGG
			HARV				1419	1425	3				IIIGG
			WEIS				1422.0	1423.3	2				IIIG,RS
			DWIN	1438.6	1439.4	2							IIIG,U
			HARV				1533	1538	3				IIIGG
			HARV				1604	1605	2				IIIB

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

MAY 1980

DAY	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS: DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
05			BLEN	1652.9	1659.7	3	1652.9	1655.8	3				IIIGG,RS
			HARV				1653	1658	3				IIIG
			WEIS				1653.0	1653.4	3				IIIG,RS
			PALE				1653.0	1653.5	1				V
			WEIS				1655.5	1655.9	2				IIIG,RS
			HARV				1726		3				IIIG
			WEIS				1726.2	1726.4	3				IIIG,RS
			BLEN	1726.2	1728.6	3	1726.2	1728.6	3				IIIGG,RS
			HARV				1747	1750	3				IIIG
			HARV				1931		3				IIIB
			PALE				1957.6	1958.3	2				III
			HARV				1958		2				IIIG
			HARV				2009	2015	3	2009	2015	2	IIIGG
			PALE				2009.2	2014.0	3				CONT
	2029	2400	CULG				2036	2341	2				IS,DC
			CULG	2037	2100	1							IS
			CULG				2051	2400					IIIS,W
			CULG				2052	2350	1				IIIN
			HARV				2056	2057	2				IIIG
			CULG	2057.5		1							IIIB
			CULG	2100	2400								IN,W
			HARV				2140		2				IIIB
			CULG	2140.5		1							IIIB
			HARV				2207	2013	3				IIIGG
			CULG	2207	2207.5	1	2207	2207.5	1				IIIG
			CULG	2212	2213	2							IIIG,RS
			HARV				2231	2232	2				IIIGG
			CULG	2231.5	2232	1							I
			CULG	2255.5		1	2255.5		2				IIIB
06			CULG				0000	0529	1				IS,DC
			CULG	0000	0729								IS,W
	0000	0729	CULG				0000	0055					IIIS,W
			CULG	0006	0006.5	2							IIIG
			CULG	0006	0223	1	0005	0055	1				IIIN
			CULG				0009.5	0010.5	2				IIIG
			CULG				0055	0729					IIIN,W
			CULG				0141	0141.5	1	0141	0141.5	1	IIIG
			CULG				0228	0228.5	1	0228	0228.5	1	IIIB
			CULG				0232.5	0234	1				IIIGG
			CULG				0242	0243.5	1				IIIGG
			CULG	0320.5	0321	1							IIIG,RS
	0433	0717	WEIS				0434	1525	3				IS
	0721	1804	WEIS				0439	1736	2				IIIS
	0455	1740	BLEN	0455 E	1210	3	0455 E	1210	3				I,NS,DC
			CULG				0529	0729	1				N,DC
			CULG				0529	0729					IS,W
			BLEN				0728.2	0728.5	3				IIIB
			BLEN				0745.7	0750.0	2				IIIGG
			BLEN	0758.2	0759.0	2							DCIM
			BLEN	0900.1	0904.3	2	0900.1	0904.3	2				IIIGG,RS
	0540	1725	DWIN	0902.4		1							IIIB
			DWIN	0903.0		1							IIIB
			BLEN	1200.5	1200.6	2	1200.5	1200.6	2				IIIB
	1247	2245	HARV				1252	2225	2				I
			HARV				1314	1315	2				IIIG
			BLEN				1314.3	1324.2	2				IIIG
			HARV				1323	1324	2				IIIG
			HARV				1429		1				IIIB
			HARV				1551	2209	2	1551	2105	2	IIIN
			HARV				1614		2				IIIG
			BLEN				1703.7	1703.8	3				IIIB
			HARV				1704		3				IIIB
			HARV				1847	1852	3				IIIGG,V
			PALE				1848.8	1852.0	3				V
			SGMR				1848.9	1850.8	1				V
			HARV				1928	1931	3				IIIGG
			PALE				1933.0	1933.2	1				III
			PALE				2001.8	2007.2	1				CONT
			PALE				2014.7	2014.9	1				III

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

MAY 1980

DAY	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS: DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
06			HARV				2026		2				IIIG
	2029	2400	CULG	2035	2400								IN,W
			CULG				2039	2119	1				IS,DC
			CULG				2041	2309					IIIN,W
			PALE				2045.8	2049.7	1				CONT
			CULG				2046.5	2047	1				IIIG
			CULG				2119	2225					IS,W
			CULG				2119	2400					IN,W
			SGMR				2120.7	2322.0	3				S
			HARV				2124		3				IIIG
			CULG	2124	2124.5	2							IIIG
			CULG				2127		1				IIIB
			HARV				2128	2129	3				IIIG
			CULG	2128.5	2129	1	2128.5	2129	2				IIIG,RS
			PALE				2128.7	2128.9	1				III
			CULG				2130.5		1				IIIB
			PALE				2208.4	2209.5	2				V
07	0000	0728	CULG				0000	0103					IN,W
			CULG	0000	0105								IS,W
			CULG				0017.5	0019.5					IIIG,W
			PALE				0017.7	0019.4	2				V
			LEAR				0017.9	0018.3	1				CONT
			CULG				0021	0022.5					IIIG,W
			CULG	0051.5	0052.5	1							IIIGG
			CULG	0105	0728								IN,W
			CULG	0145.5	0146	1							IIIG,RS
			LEAR				0159.7	0159.9	1				CONT
			CULG	0403.5	0404	2							IIIG
			CULG	0405.5	0406	1							IIIG
	0432	1345	WEIS				0422	1702	2				IIIN
			CULG				0448	0527					IIIN,W
	0453	1740	BLEN				0454 E	1630	1				I,DC
			BLEN	0454.2	0458.6	2							DCIM
			BLEN	0617.2	0636.3	1							DCIM
	0625	1800	DWIN	0627.5	0631.6	2						IV	DCIM
			BLEN	0709.5	0711.2	1							DCIM
			DWIN	0709.5	0711.5	2						IV	Z
			DWIN	0729.2	0730.4	1						IV	
			BLEN	0736.8	0738.5	1							DCIM
			DWIN	0736.9	0738.5	2						IV	
			BLEN				0800.2	0800.3	2				III,B
			BLEN	0829.5	0830.4	1							DCIM
			BLEN	0845.4	0845.6	1	0843.1	0846.7	2				IIIGG
			BLEN	0856.4	0859.6	1							DCIM
			DWIN	0856.5	0859.6	2						IV	Z
			BLEN	1001.5	1002.2	1	1001.5	1002.2	2				IIIGG
	1349	1804	WEIS				1001.7	1002.2	3				IIIG
			DWIN	1120.0	1130.0	3						IV	P
			BLEN	1120.1	1127.2	3							DCIM
			WEIS	1120.2	1126.7	2							IIIGG
	1247	2245	HARV				1247	2236	1				I
			BLEN	1254.0	1327.0	3	1253.5	1327.0	3				V,IV
			HARV				1308		1				IIIG
			DWIN	1308.0	1309.2	2						IV	
			HARV				1314	1322	3	1318	1320	2	IIIG,V
			WEIS				1314.4	1315.5	2				IIIG,RS
			DWIN	1314.5	1323.0	3						IV	F,DCIM
			WEIS				1317.6	1319.0	3				IIIG/V
			WEIS				1317.6	1322.5					CONT
			SGMR				1317.8	1318.0	3				III
			WEIS				1318.8	1326.0	3				IIIG/V
			HARV				1321	1327	2				UNCL
			BLEN				1353.3	1353.3	2				IIIB
			SGMR				1443.1	1443.3	2				III
			DWIN	1455.0	1458.0	3						IV	DCIM
			BLEN	1455.3	1457.4	3	1455.9	1456.3	3				IIIG
			WEIS				1455.8	1457.3	3				IIIGG
			WEIS				1455.8	1457.3					CONT
			HARV				1456		3				IIIG

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

MAY 1980

DAY	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS: DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
07			BLEN	1543.7	1604.2	1	1543.7	1601.4	2				IIIG
			HARV				1544		3				IIIG
			HARV				1549		1				IIIG
	0625	1800	DWIN	1549.1	1549.2	2						IV	P
			HARV				1601	1602	1				IIIG
	2029	2400	CULG	2040	2400								IS,W
			CULG	2046.5	2047.5	2	2046.5	2047.5	2				IIIG,Z
			PALE				2046.7	2047.8	2				V
			HARV				2047		3				IIIG,V
			HARV				2108	2109	3				IIIG
			CULG	2108.5	2109	1							IIIG
			HARV				2147		2				IIIG
			CULG	2147.5	2148	1							IIIG
			HARV				2240		3				IIIG
			CULG	2240	2240.5	2	2240	2240.5	1				IIIG
			CULG	2242.5	2243	1							IIIG
			HARV				2243		2				IIIG
			CULG				2321	2321.5					IIIG,W
08	0000	0728	CULG	0000	0138								IS,W
			CULG	0015	0020.5	1	0015	0019	1				IIIGG,U
			CULG	0056	0058.5	3	0057	0058	3	0057.5	0058	1	IIIGG
			CULG	0057	0100	3	0059	0110	2			II	
			PALE				0057.3	0058.3	2				CONT
			LEAR				0057.3	0058.3	1				CONT
			CULG							0058	0106	1	SWF
			CULG	0059.5	0101	1							IIIG
			CULG	0100	0104.5	1							DCIM
			CULG				0121.5	0122.5	1				IIIG
			CULG	0138	0728								IN,W
			CULG	0142	0142.5	2	0142		1				IIIG
			CULG				0147.5						IIIB,W
			CULG	0154.5	0155.5	1	0154.5	0155.5	1				IIIG
			CULG	0212.5		1							IIIB
			CULG	0259		1							IIIB,RS
			CULG				0311	0348					IN,W
			CULG				0338.5						IIIB,W
			CULG	0419.5	0420	1							IIIG
			CULG	0423	0423.5	2							DCIM
	0450	0517	BLEN	0500.0	0500.5	2	0500.1	0500.5	2				IIIG
	0431	1805	WEIS				0525.0	1716.0	2				IIIN
			LEAR				0525.5	0526.2	1				CONT
			CULG				0525.5		1				IIIB
			CULG				0526						IIIB,W
			CULG	0530	0532	1							IIIG
			LEAR				0630.3	0631.0	1				CONT
	0540	0928	DWIN	0731.8	0733.6	1							IIIG
			DWIN	0753.5	0754.9	2							IIIG
			DWIN	0757.5	0800.0	2							IIIG
			DWIN	0800.4	0800.6	1							IIIG
			DWIN	0813.6	0814.1	2							IIIG
			WEIS				0819.3	0819.4	2				IIIB
			DWIN	0819.6	0820.3	2							IIIG
	1022	1745	DWIN	1026.6	1027.5	1						IV	DCIM
			DWIN	1027.5	1029.3	2							IIIG
			WEIS				1126.4	1127.9	3				IIIGG
	1119	1748	BLEN	1126.5	1129.6	3	1126.5	1129.6	3				IIIG,V
			BLEN	1211.3	1212.7	1	1211.3	1213.8	2				IIIG
			BLEN				1229.2	1229.3	2				IIIB
	1247	2245	HARV				1318	1319	1				IIIG
			BLEN				1318.5	1318.8	1				IIIG
			BLEN	1340.5	1344.2	2							DCIM
			HARV				1346	1942	1				IN
			HARV				1424	1426	1				IIIG
			HARV				1506	1512	2				IIIGG
			BLEN				1506.5	1511.7	2				IIIG
			BLEN	1536.4	1550.8	1	1546.5	1556.7	1				IIIG
			HARV				1537		1				IIIG
			HARV				1546	1557	2				IIIN
			BLEN	1610.6	1610.7	2							DCIM

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

MAY 1980

DAY	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS: DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
08			BLEN				1708.7	1709.1	1				IIIG
			HARV				1709		2				IIIG
			HARV				1715	1716	1				IIIG
			HARV				1753		1				IIIGW
			HARV				1810		1				IIIGW
			HARV				1907		2	1907		2	IIIB
			PALE				1907.3	1907.6	1				III
	2028	2400	CULG	2140	2400								IN,W
			HARV				2226		2				IIIB
09	0000	0728	CULG	0000	0728								IN,W
			CULG	0129.5	0130	1	0129.5	0130	1				IIIG
			LEAR				0129.7	0130.4	1				V
			PALE				0129.8	0130.4	2				V
			CULG	0354.5	0355		0354.5	0355					IIIG,W
	0431	0633	WEIS										
	0636	1807	WEIS				0659.8	0700.9	2				IIIG
			LEAR				0659.8	0700.8	1				V
	0450	1740	BLEN	0712.1	0719.5	3	0714.1	0719.5	1				DCIM
	0535	1745	DWIN	0712.2	0713.1	1							IIIG
			WEIS	0712.4	0714.4	2							IIIGG,RS
			DWIN	0713.8	0714.5	2						II	
			BLEN				0715	1740 D	1				I,DC
			DWIN	0715.2	0715.8	1							IIIG
	1247	2245	HARV				1247	2245	1				I
			HARV				1418		1				IIIGW
			WEIS				1652.3	1652.5	1				IIIG
			WEIS				1654.3	1654.5	1				IIIG
			HARV				1730	1734	3				IIIGG
			BLEN				1730.0	1740.3	2				IIIGG
			WEIS				1732.3	1734.0	3				IIIGG
			HARV				1740		2				IIIG
			HARV				1849	1851	3				IIIG
			PALE				1850.8	1851.1	2				III
			HARV				1902	1903	2				IIIG
			HARV				1935	1937	3				IIIG
			PALE				1935.0	1946.0	1				CONT
			HARV				1942	1943	3				IIIG
			HARV				1948	1950	2				IIIG
			HARV				2006	2008	2				IIIG
			HARV				2037		1				IIIB
	2028	2400	CULG	2045	2400		2053	2400					IN,W
			HARV				2101		1				IIIG
			CULG				2110	2116				IV	W
			HARV				2111	2115	3				IIIGG
			CULG	2112	2112.5	1							IIIG
			CULG	2115	2115.5	2							IIIG
			CULG				2119.5	2121	1				DC
			CULG	2133	2353								IIIN,W
			HARV	2147		3	2147	2149	3				IIIGG
			CULG	2147	2148	2	2147	2148	2				IIIG
			PALE				2148.0	2249.0	1				B
			CULG	2148.5	2149.5	2							IIIG
			CULG				2153						IIIB,W
			CULG				2155.5						IIIB,W
			CULG				2308.5	2309.5	2				IIIG
			PALE				2345.0	2347.1	1				CONT
			CULG				2345.5	2352	1				IIIN
			CULG				2354	2355	2				IIIG
			PALE				2354.0	2355.1	1				CONT
10	0000	0728	CULG	0000	0728								IN,W
			CULG				0018	0533					IIIN,W
			PALE				0024.3	0027.0	1				CONT
			CULG	0054	0219	1	0054	0133	2				IIIG,N
			LEAR				0054.6	0056.9	1				CONT
			PALE				0124.1	0124.8	1				V
			LEAR				0124.3	0132.5	1				CONT
			PALE				0131.3	0132.7	2				V
			CULG				0351	0724	1				IIIN

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

MAY 1980

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
10			LEAR				0404.2	0405.2	1				CONT
			CULG				0404.5	0405	2				IIIG
			CULG	0445	0445.5	1	0445	0446	2				IIIG
	0429	1257	WEIS				0445.0	1722.0	3				IIIN
			LEAR				0445.4	0449.5	2				CONT
	0445	1740	BLEN	0447.9	0448.9	1	0445.2	0448.9	3				IIIG
			CULG	0448	0449	1	0448	0449	3				IIIG
			LEAR				0502.8	0532.8	1				S
			BLEN	0518.3	0526.9	2							IIIU
			CULG				0532	0532.5	3				IIIG
			BLEN				0532.2	0532.4	3				IIIG
			BLEN				0652.5	0652.8	2				IIIG
			LEAR				0652.7	0723.8	1				S
			BLEN	0810.3	0833.4	1	0823.5	0835.1	2				IIIGG
	0535	1800	DWIN	0810.5	0810.8	1							IIIG
			LEAR				0824.0	0833.1	1				CONT
			DWIN	0831.5	0832.5	1							IIIG
			BLEN				0910.2	0910.4	2				IIIB
			BLEN				0925.8	0927.5	1				IIIG
			BLEN	0957.1	1001.3	2	0951.1	0957.8	2				IIIG,V
	1600	1808	WEIS				0957.2	0958.2	3				IIIG,RS
			BLEN	1047.1	1049.7	2	1047.1	1048.8	1				IIIG
			BLEN	1118.1	1208.3	2	1120.2	1135.4	2				IIIGG
			DWIN	1119.6	1120.3	1							IIIG
			DWIN	1130.0	1135.5	1							IV DCIM
			BLEN				1241.2	1357.4	3				IIIGG
	1246	2245	HARV				1248	2245	1				I
			HARV				1304	1307	3				IIIG
			HARV				1316	1325	3	1320		1	IIIGG
			HARV				1330		2				IIIB
			HARV				1357	1358	3				IIIG
			HARV				1403	2229	2				IIIN
			HARV				1444	1447	2	1447		1	IIIG
			BLEN	1444.2	1528.9	3	1444.2	1528.9	3				IIIGG,RS
			HARV	1505	1508	3	1502	1513	3	1502	1513	3	IIIGG
			SGMR				1505.5	1506.9	2				V
			BLEN	1625.2	1651.5	2	1625.5	1651.5	2				IIIGG
			HARV	1626		2	1625	1626	3	1625	1626	3	IIIG
			HARV				1631		2	1631		1	IIIB
			HARV	1649		1	1649		3	1649		2	IIIG
			HARV				1711	1716	3	1711	1716	2	IIIG
			BLEN	1712.7	1745.5	3	1714.8	1745.5	3				IIIGG,I
			PALE				1712.8	1713.2	1				III
			WEIS				1714.6	1716.3	3				IIIG
			DWIN	1744.8	1745.5	2							IIIG
			HARV	1745	1746	3	1745	1746	3				IIIG
			WEIS				1745.3	1745.6	3				IIIG,RS
			WEIS				1755.7	1759.4	3				IIIGG
			HARV	1756	1758	3	1756	1802	3	1756	1802	3	IIIGG,V
			SGMR				1756.3	1757.5	3				V
			DWIN	1756.5	1757.9	3							IIIG
			PALE				1756.7	1801.3	3				V
			PALE				1825.8	2200.0	1				B
			HARV	1951	1955	3	1951	1955	3				IIIGG
			HARV				2016	2018	2				IIIG
			HARV	2020	2027	3	2020	2027	3	2020	2027	3	IIIGG,V
			PALE				2020.8	2026.4	3				V
			SGMR				2021.5	2022.3	3				CONT
	2030	2400	CULG	2045	2400								IN,W
			HARV				2111	2113	3				IIIG
			CULG	2111	2251	1							IIIN
			CULG				2120	2230					IIIN,W
			HARV				2121	2128	3	2121	2127	2	IIIGG
			CULG	2123.5	2124	1	2123.5	2124.5	1				IIIG
			CULG	2127		1	2127		2				IIIB
			HARV				2139	2141	3				IIIG
			CULG	2139	2140	1	2139	2140	2				IIIG
			CULG	2140.5		1	2140.5		3				IIIB
			CULG	2159.5		1	2159.5		1				IIIB
			HARV				2200		3				IIIB

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

MAY 1980

DAY	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
10			CULG				2306.5		1				IIIB
11	0000	0728	CULG	0000	0728								IN,W
			CULG	0008	0655		0008	0652					IIIN,W
			PALE				0025.8	0026.6	2				V
			CULG	0026	0026.5	2	0026	0026.5	2				IIIG
			LEAR				0026.1	0026.4	1				V
			CULG	0047.5	0048.5	1	0047.5	0049	2				IIIG
			PALE				0047.6	0049.8	2				CONT
			LEAR				0047.6	0048.9	1				CONT
			CULG	0102	0103	2							IIIG
			CULG	0115.5		2							IIIB
			PALE				0121.3	0123.5	1				CONT
			LEAR				0121.4	0121.8	1				CONT
			CULG				0208	0651	1				IIIN
			LEAR				0210.9	0211.5	1				CONT
			CULG	0211	0211.5	2	0211	0211.5	3				IIIG
			PALE				0211.0	0211.6	2				V
			PALE				0227.2	0229.0	1				CONT
			PALE				0250.8	0251.7	1				V
			LEAR				0310.9	0354.5	1				S
			CULG	0313.5	0314	2							UNCLF
			PALE				0333.5	0341.2	1				CONT
			PALE				0404.6	0405.4	1				CONT
			LEAR				0440.3	0504.0	1				S
	0428	1809	WEIS				0444	1727	2				IIIN
	0445	1740	BLEN	0445.8	0530.4	2	0445.8	0530.4	2				IIIGG
			BLEN				0555.2	1740 D	2				I,DC
			LEAR				0556.0	0649.5	1				S
			WEIS				0643.8	0646.3	3				IIIG
			LEAR				0643.9	0646.5	2				CONT
			CULG				0644	0646	3				IIIG,V
			BLEN				0739.7	0746.2	2				IIIGG
			WEIS				0744.8	0746.5	3				IIIGG
			LEAR				0745.0	0746.5	2				CONT
			LEAR				0837.5	0837.8	1				V
			WEIS				0923.3	0929.2	3				IIIGG,RS
			BLEN	0924.3	0933.7	2	0924.3	0933.7	3				IIIGG
	0530	1350	DWIN	0925.0	0928.0	2						IV	
			DWIN	1009.0	1010.3	1						IV	
			BLEN	1009.8	1100.3	2	1009.8	1100.3	3				IIIGG
			WEIS				1029.4	1029.7	2				U
			WEIS				1049.4	1050.7	3				IIIG
			DWIN	1049.4	1050.8	1						IV	
			DWIN	1052.0	1053.5	1						IV	
			DWIN	1056.0	1057.5	2						IV	
			BLEN	1142.1	1223.3	2	1142.1	1223.3	3				IIIGG
	0530	1350	DWIN	1210.1	1211.8	1						IV	
			WEIS				1210.2	1215.2	3				IIIGG
			WEIS				1218.6	1218.6	2				IIIB
	1247	2245	HARV				1248	2245	1				I
			WEIS				1256.0	1258.9	3				IIIGG,RS
			BLEN	1256.7	1317.9	1	1256.7	1317.9	2				IIIGG
			DWIN	1256.8	1302.6	1						IV	
			HARV	1257		1	1256	1259	2				IIIGG
			HARV				1301	1304	3				IIIGG
			HARV				1307	1308	2				IIIB
			SGMR				1307.5	1307.8	2				V
			HARV				1313	1317	3				IIIGG
			WEIS				1314.2	1317.3	3				IIIGG
			SGMR				1314.5	1346.1	1				S
			DWIN	1316.8	1316.9	1							IIIG
			WEIS				1330.7	1331.3	2				IIIG,U
			BLEN	1330.8	1351.0	2	1330.8	1351.0	2				IIIGG
			HARV				1331		2				IIIG
			HARV	1345	1351	2	1345	1351	3				IIIGG
			DWIN	1345.0	1346.0	1						IV	
			WEIS				1345.2	1349.2	3				IIIGG
			BLEN	1440.3	1525.6	3	1440.3	1525.9	3				IIIGG
			HARV	1456	1500	1	1453	1501	3	1453	1501	2	IIIGG

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

MAY 1980

DAY	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS: DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
11			WEIS				1456.1	1500.9	3				IIIGG
			SGMR				1512.3	1514.6	3				V
			WEIS				1512.3	1516.4	3				IIIGG/V
			HARV	1513	1523	3	1512	1523	3	1512	1514	3	IIIGG,V
			WEIS				1513.6	1516.3	3				
			WEIS				1516.6	1522.8	2			II	HARM
			HARV				1517	1525	3				UNCL
			WEIS				1521.4	1523.3	2				IIIGG,RS
			BLEN				1543.8	1544.0	1				IIIG
			HARV				1544		2				IIIG
			HARV				1550						IIIB
			HARV				1601	1602	2	1601	1602	2	IIIG
			HARV				1622	1623	2				IIIG
			BLEN				1622.5	1622.9	1				IIIG
			BLEN	1644.7	1654.8	1	1620.7	1654.8	2				IIIGG
			BLEN	1647.8	1716.9	2	1644.8	1716.9	2				IIIGG
			HARV	1651	1659	2	1652	1700	3	1652	1700	3	IIIGG,V
			WEIS				1654.7	1658.3	3				IIIGG/V
			PALE				1655.0	1702.2	3				CONT
			SGMR				1655.3	1700.4	3			II	
			HARV				1658	1706	2			II	
			WEIS				1658.4	1702.7	3			II	HARM
			WEIS				1714.7	1716.4	3				IIIGG
			PALE				1714.9	1717.1	1				CONT
			HARV				1715	1717	3	1715	1716	2	IIIGG
			SGMR				1715.0	1715.3	1				III
			PALE				1809.8	1814.1	2				CONT
			HARV				1810	1814	3	1810	1814	2	IIIGG
			HARV				1839	1840	1	1839	1840	1	IIIG
			PALE				1852.2	1856.1	3				V
			SGMR				1852.4	1854.7	3				V
			HARV	1853		3	1852	1855	3	1852	1855	3	IIIGG,V
			HARV				1925	1928	3	1925	1928	3	IIIG
			PALE				1925.5	1931.9	3				CONT
			HARV				2004		1				IIIG
	2028	2400	CULG				2051	2400					IN,W
			CULG	2151.5	2152.5		2151.5	2152.5					IIIG,W
			HARV				2152		2				IIIG
			CULG	2342	2343	2							IIIG
12	0000	0728	CULG				0000	0250					IN,W
			CULG	0012	0019	1							IIIN
			CULG				0014.5						IIIB,W
			LEAR				0216.4	0216.7	1				CONT
			CULG	0221	0235								IS,W
			CULG				0237	0237.5					IIIG,W
			LEAR				0237.1	0237.7	1				CONT
			CULG				0250	0440	1				IS,DC
			LEAR				0253.9	0306.0	3				CONT
			PALE				0253.9	0301.8	3				V
			CULG	0254	0257.5	3	0254	0257.5	3	0254.5	0256.5	3	IIIGG,V
			CULG	0255	0257		0255	0500				IV	W
			LEAR				0306.0	0934.0	1				B
			CULG				0313		2				IIIB
			CULG	0323	0323.5	1							IIIG
			CULG				0415.5		1				IIIB
	0426	0851	WEIS				0428	0627	2				IN
			CULG				0440	0630					IS,W
	0445	1043	BLEN				0500	1043 D	2				I,DC
			CULG	0555.5	0557.5	3	0555.5	0559.5	3				IIIGG,V
			BLEN	0555.5	0601.7	3	0555.5	0601.7	3				IIIGG
			LEAR				0555.6	0559.6	2				CONT
			WEIS				0555.6	0559.9	3				IIIGG/V
	0620	0858	DWIN										
			WEIS				0757	1537	2				IIIN
			BLEN				0842.8	0850.2	3				IIIG
	0854	1809	WEIS				0953.5	1000.7	3				IIIGG/V
			BLEN	0955.5	0956.3	2	0953.7	1009.9	2				IIIGG
			WEIS				1001.3	1002.2	1			II	HARM
	1210	1800	DWIN										

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

MAY 1980

DAY	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS: DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
12			HARV				1248		2				IIIB
	1247	2245	HARV				1248	2245	1				I
			HARV				1351	1356	2	1351	1352	1	IIIGG
			HARV				1452	1454	3	1452	1454	2	IIIGG
			HARV				1502	1504	3			II	
			BLEN	1512.4	1512.4	2	1512.4	1512.4	2				IIIB
			HARV				1514		1	1514		1	IIIG
			HARV				1518		1				IIIB
			HARV				1535		1				IIIB
			PALE				1652.9	1709.5	1				S
			HARV							1906		2	IIIB
			HARV				1936		2				IIIB
			HARV				2034		2				IIIB
	2028	2400	CULG	2104	2400		2109	2400					IN,W
			CULG				2123.5	2124.5	1				IIIG
			HARV				2124		2	2124		2	IIIG
			CULG	2221.5	2222	1							IIIG
			HARV				2222		2				IIIG
			CULG				2323.5	2324.5					IIIG,W
			CULG				2345	2347					IIIG,W
13	0000	0728	CULG				0215.5						IIIB,W
	0426	1512	WEIS				0432	0543	2				IS
			CULG				0434	0508					IS,W
			WEIS				0439	1725	2				IIIN
			CULG				0447	0504					IIIS,W
			LEAR				0447.1	0552.3	1				B
			CULG				0447.5	0449	1				IIIG
	0800	1745	DWIN										
			LEAR				0833.4	0833.8	1				V
	1247	2245	HARV				1307	2153	1				IIIN
			WEIS				1414.7	1414.9	3				IIIG
			HARV				1415		2	1415		2	IIIG
			WEIS				1418.8	1419.9	3				IIIG
			HARV				1419	1420	3	1419	1420	2	IIIG
			HARV				1452		3				IIIB
			WEIS				1452.1	1452.5	3				IIIG
			WEIS				1500.9	1501.1	3				IIIB
			HARV				1501		3	1501		1	IIIG
			HARV				1530	1531	3	1530	1531	2	IIIG
	1516	1812	WEIS				1530.6	1531.5	3				IIIG
			HARV				1957		2	1957		1	IIIG
			HARV				2025	2028	2				IIIG,U
			PALE				2110.9	2114.9	1				CONT
	2028	2400	CULG	2151	2151.5								I,W
			CULG	2152	2153		2152.5	2153					IIIG,W
			CULG				2207.5	2208					IIIG,W
			CULG				2302.5	2304					IIIG,W
			CULG				2329.5						IIIB,W
			PALE				2329.7	2329.8	1				III
14	0000	0728	CULG				0148	0151					IIIG,W
			LEAR				0148.6	0148.7	1				III
			PALE				0214.9	0216.2	1				CONT
			LEAR				0214.9	0216.3	1				CONT
			CULG				0215	0216	2				IIIG
			CULG	0249		2							IIIB
			CULG	0307	0728								IN,W
			CULG				0315	0700					IIIN,W
			CULG				0358		1				IIIB
			CULG	0403.5	0404.5	1	0402.5	0404	2				IIIG
	0424	1813	WEIS				0433	1755	2				IIIN
			CULG				0434	0434.5					IIIG,W
			CULG	0513	0556								IIIN,W
			LEAR				0523.5	0524.1	1				III
			LEAR				0553.4	0555.5	1				CONT
			WEIS				1255.7	1258.8	3				IIIGG
	1247	2245	HARV				1256	1258	3				IIIG,V
			WEIS				1302.5	1302.7	3				IIIB
			HARV				1305	1320	2			II	

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

MAY 1980

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
14			WEIS				1305.3	1323.8	2				II HARM
			HARV				1306	1307	2				IIIG
			HARV				1309	1310	1				IIIG
			HARV	1332	1333	3	1332	1333	2				IIIG
	0525	1745	DWIN	1332.1	1332.7	1							IIIG
			WEIS				1332.2	1333.2	2				IIIG
			HARV				1354		2				IIIG
			WEIS				1354.1	1354.5	2				IIIG,U
			HARV				1439	2109	1				IN
			HARV	1457	1510	2	1457	1510	3				IIIGG,V
			WEIS				1457.6	1501.8	2				IIIGG,U
			DWIN	1458.0	1503.6	1							IIIG
			WEIS				1509.1	1510.1	3				IIIGG
			DWIN	1520.0	1522.0	1							IV
			HARV				1557		2				IIIG
			WEIS				1628.9	1632.5	3				IIIGG,U,RS
			HARV	1631	1632	2	1627	1633	3	1631		2	IIIGG
			DWIN	1631.0	1632.3	2							IIIG
			DWIN	1635.0	1635.2	1							IIIG
			DWIN	1719.8	1723.5	1							IV
			HARV	1721	1723	2	1717	1723	3	1721	1723	2	IIIGG
			WEIS				1721.4	1724.5	3				IIIGG
			HARV				1733		2				IIIB
			HARV				1742		3				IIIB
			HARV				1754		2				IIIG
			HARV	1836		2	1836		3				IIIG
			HARV				1844		1				IIIB
			HARV	1914	1921	3	1914	1921	3	1917	1921	3	IIIGG,V
			PALE				1916.1	1917.3	2				V
			SGMR				1916.7	1916.8	1				III
			PALE				1918.8	1926.0	3				V
			SGMR				1919.8	1933.9	2				CONT
			HARV				1923	1937	3				II
			PALE				1926.0	2135.0	2				B
			HARV				2009	2010	3				IIIG
	2028	2400	CULG				2040	2145	1				IS,C
			CULG	2045	2327								IN,W
			CULG				2050	2141					IIIS,W
			HARV				2133	2141	3	2139	2141	2	IIIGG
			PALE				2136.9	2137.5	2				III
			CULG	2137	2137.5	1	2137	2137.5	1				IIIG
			PALE				2139.0	2141.4	2				V
			CULG	2139.5	2140	1	2139	2141	3				IIIG,V
			CULG				2145	2256					IS,W
			HARV				2154		3				IIIG
			CULG				2158.5	2159.5	2				IIIG
			HARV				2209	2210	2				IIIG
			CULG	2209.5		1	2209.5	2210	1				IIIG
			CULG				2215	2358					IIIN,W
			HARV				2240		2				IIIG
			CULG	2240	2321	1							IIIN
			HARV				2243	2245	2				IIIG
			CULG	2316.5	2317	2	2316.5	2317	2				IIIG
			CULG	2339.5	2342	2	2341	2342	3	2341	2342	1	IIIG,V
			PALE				2341.1	2342.1	3				V
			LEAR				2341.1	2341.8	2				CONT
15	0000	0642	CULG	0013	0627		0013	0628					IIIN,W
			CULG				0050	0050.5	1				IIIG
			CULG	0101.5	0103.5	3	0101.5	0105.5	3	0102.5	0104.5	3	IIIGG,V
			CULG	0102	0105.5	1							IV P
			PALE				0102.3	0107.0	3				V
			LEAR				0102.4	0105.8	3				CONT
			CULG				0107.5	0122	3				II
			LEAR				0107.6	0128.9	1				II
			PALE				0108.9	0127.0	2				II
			CULG				0132	0132.5	1				IIIG
			LEAR				0219.4	0232.0	1				S
			CULG				0219.5		1				IIIB
			CULG				0232	0233	2				IIIG

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

MAY 1980

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
15			PALE				0232.2	0233.0	2				III
			CULG				0254.5	0255	2				IIIB
			PALE				0254.7	0255.2	2				V
			CULG	0335	0335.5	2	0335	0335.5	2				IIIG
			LEAR				0335.4	0335.6	1				III
			LEAR				0341.5	0341.8	1				CONT
	0424	0730	WEIS				0427	1736	2				IIIN
			CULG				0427	0436.5	1				IIIS
			LEAR				0428.6	0441.0	1				S
			CULG				0435.5	0436.5	2				IIIG
			CULG				0515.5		1				IIIB
			LEAR				0600.0	0933.0	1				B
	0733	1814	WEIS				0714.3	0717.9	3				IIIGG
			WEIS				0720.0	0721.1	2				IIIGG
			WEIS				0736.9	0737.3	3				IIIG
	0525	1745	DWIN	1235.5	1241.5	1							IIIGG
	1320	2310	HARV				1421	1423	1				IIIG
			HARV				1628	1632	2				IIIGG
			HARV				1731		2				IIIG
			HARV				1817	1839	2				I
			HARV	1920	1921	2							IIIG
			HARV				1930	1937	2	1936	1937	2	IIIGG
			PALE				1936.0	1938.2	2				CONT
			HAPV	2039	2042	2	2039	2042	3				IIIG,U,V
			HARV				2109	2310	2				I
	2029	2400	CULG	2110	2400								IN,W
			CULG	2327.5	2328	2							IIIG
16	0000	0729	CULG	0134	0136	3							IIIGG
			PALE				0212.0	0215.0	3				CONT
			CULG				0213	0214.5	1				IIIG
			LEAR				0213.3	0214.5	1				V
			PALE				0224.0	0224.9	3				V
			LEAR				0224.5	0224.8	2				V
			CULG	0224.5		1	0224.5	0225	2	0224.5		1	IIIG
			CULG	0330	0330.5	2							IIIG
			LEAR				0653.7	0654.9	1				CONT
			CULG				0654	0654.5	1				UNCLF
	0811	1745	BLEN				0918.7	0919.6	2				IIIGG
	0421	1309	WEIS				0918.8	0919.7	2				IIIGG
	1249	2246	HARV				1251	1317	1				I
	1344	1814	WEIS				1448	1650	2				IIIN
			HARV				1448	1449	2				IIIG
			BLEN				1458.3	1508.5	2				IIIGG
			HARV				1502		1				IIIG
			HARV				1508	1509	3				IIIG
			HARV				1605	1606	3				IIIG
			BLEN				1605.5	1605.7	2				IIIG
			BLEN	1635.3	1637.2	1							DCIM
			HARV	1636	1637	1	1636	1637	1				IIIG
	0525	1800	DWIN	1636.1	1637.2	1						IV	
			BLEN				1636.5	1650.0	2				IIIG,V
			HARV				1641		1				IIIB
			HARV				1648	1650	3				IIIG
			HARV				1704	2037	2				
			HARV				2153	2154	2				IIIG
	2028	2400	CULG	2211	2220								IIIN,W
			HARV				2212	2214	2				IIIG
			HARV				2219	2224	1				IIIG
			CULG				2219.5		1				IIIB
			PALE				2219.6	2220.2	1				V
			CULG				2220.5	2221					IIIG,W
			CULG	2230	2233.5	1							IIIGG
			HARV				2231	2234	3				IIIGG
			CULG				2231	2234					IIIG,Z,W
			PALE				2231.4	2234.1	1				V
			HARV				2237	2246	3			II	
			CULG	2238	2240	2	2238	2251.5	3			II	H
			PALE				2240.7	2248.8	1			II	
			CULG				2250.5	2251.5					IIIG,W

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

MAY 1980

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
17	0000	0728	CULG	0408.5	0409	2							IIIG
	0445	1745	BLEN				0445 E	0940	1				I,DC
	0421	1816	WEIS				0503	1759	2				IIIN
			WEIS				0508	0941	1				IN
			CULG	0519	0710								IS,W
			CULG				0601	0658					IN,W
			BLEN				0657.5	0657.7	1				IIIG
			WEIS				0733.9	0737.0	3				IIIGG,RS
			LEAR				0734.0	0738.5	1				CONT
			BLEN	0734.0	0741.8	1	0733.8	0736.3	2				IIIGG
	0520	1800	DWIN	0734.0	0735.1	1							IIIG
			DWIN	0735.5	0740.0	1						IV	F
			LEAR				0812.0	0932.0	1				B
			BLEN	0926.2	0927.5	1	0926.7	0927.5	1				IIIG
			BLEN				1034.5	1034.7	1				IIIG
			BLEN				1053.1	1053.2	1				IIIG
			BLEN	1112.6	1113.0	2	1112.6	1113.2	2				IIIG,V
			WEIS				1112.8	1113.6	3				IIIG
			BLEN				1258.5	1259.4	2				IIIIG
	1247	2315	HARV				1259		3				IIIG
			BLEN	1405.5	1405.7	1							DCIM
			HARV				1432	1556	1				IN
			HARV				1543	1544	2				IIIG
			HARV				1602	1603	3				IIIG
			BLEN				1602.3	1602.4	2				IIIG
			HARV				1758		2	1758		2	IIIG
			PALE				1758.2	1758.6	1				III
			HARV				1807	1808	2	1807	1808	2	IIIG
			HARV				1905		1				IIIG
			HARV				1948	2314	1				I
	2028	2400	CULG	2105.5	2106		2105.5	2106					IIIG,W
			HARV				2106	2108	2				IIIG
			CULG	2107.5	2108	1							IIIG
			HARV				2146		1				IIIG
			CULG				2146	2159					IIIN,W
			PALE				2146.0	2146.3	1				III
			CULG	2333.5	2334	2							IIIG
18	0000	0728	CULG	0058	0058.5	1							IIIG
			CULG				0105	0106	2	0105	0106	1	IIIG
			LEAR				0105.3	0105.8	1				V
			PALE				0105.3	0111.5	2				V
			CULG				0106	0115					IIIN,W
			CULG	0106.5	0113.5	2						IV	
			CULG	0107	0109	1							IIIN
			CULG				0109	0109.5	1				IIIG
			LEAR				0109.0	0630.0	1				B
			CULG							0110	0125	1	SWF
			CULG				0129	0156					IN,W
			CULG				0156	0310	1				IS,C
			CULG	0219	0221	1							IIIN
			CULG				0445	0445.5	2				Z
	0419	0600	WEIS				0449.4	0449.7	2				U
	0445	1745	BLEN				0459.2	0550.4	3				IIIG
			WEIS				0516.5	0516.6	1				IIIB
			WEIS				0549.8	0550.8	3				IIIGG
			CULG	0550	0550.5	2	0550	0551	2				IIIG
			LEAR				0550.2	0551.1	1				CONT
			BLEN	0819.1	0823.7	1							DCIM
	1247	2250	HARV				1323	1324	2				IIIG
	0638	1816	WEIS				1323.3	1323.7	1				IIIG
			BLEN				1323.5	1323.6	1				IIIB
			WEIS				1615.7	1620.6	2				IIIGG,U
			HARV				1616	1620	2				IIIG,U
			WEIS				1636.6	1637.5	2				IIIG
			HARV				1637		2				IIIG
	2028	2400	CULG				2233						IIIB,W
			CULG				2235.5						IIIB,W
			CULG	2245	2245.5								IIIG,W
19			LEAR				0209.9	0210.3	1				CONT

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

MAY 1980

DAY	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS: DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
19	0000	0728	CULG	0214	0214.5	2							DCIM
			CULG	0215.5	0216	1							DCIM
			CULG				0237						IIIB,W
			CULG				0244.5	0245.5					IIIG,W
			LEAR				0245.0	0932.0	1				B
	0445	1745	BLEN				0538.7	0542.3	2				DCIM
			CULG	0539	0540.5	1							IIIGG
	0419	1238	WEIS				0539.1	0540.3	1				IIIG
	0825	1800	DWIN	0915.0		1							IIIB
			DWIN	0946.3	0946.5	2							IIIG
			WEIS				1040.2	1040.5	1				IIIB
			WEIS				1206.5	1212.7	1				IIIG
			WEIS				1216.3	1216.4	1				IIIB
			BLEN	1235.3	1236.6	2	1235.3	1236.6	2				IIIGG
			WEIS				1235.5	1236.7	3				IIIGG
	1247	2245	HARV				1341	1342	1				IIIGW
			BLEN	1644.5	1647.4	2	1644.5	1647.4	2				IIIGG
	1243	1819	WEIS				1644.6	1645.6	2				IIIGG
			HARV				1645	1647	3				IIIG
			WEIS				1646.8	1642.4	1				IIIG
			BLEN	1714.2	1714.3	1							IIIB
			HARV				1937	1938	1	1936	1938	2	IIIG
			HARV				2011		2	2011		2	IIIG
			HARV				2021	2022	2	2021	2022	3	IIIG
			HARV				2055		1				IIIBW
20	0047	0712	CULG	0218	0221								IIIN,W
			CULG	0440	0440.5	1							IIIG
	0440	0640	BLEN	0440.5	0440.7	2	0440.5	0440.7	2				IIIG
	0417	1501	WEIS				0440.6	0440.8	2				IIIG
			WEIS				0542.5	0546.4	3				IIIGG
			CULG				0542.5	0543.5	2				IIIG
			BLEN				0542.6	0545.7	3				IIIG
			LEAR				0542.7	0546.8	2				CONT
			CULG				0544		1				IIIB
			CULG				0545	0546.5	2				IIIG
			CULG				0551	0554					IIIN,W
			WEIS				0551.7	0553.7	2				IIIG,U
	0515	1800	DWIN	0555.8	0555.9	2							IIIG
			BLEN	0555.8	0557.0	1							DCIM
			DWIN	0558.0		2							IIIB
			WEIS				0927.1	0927.2	1				IIIB
			WEIS				1048.8	1049.6	2				IIIG
	1247	2245	HARV				1318	1602	1				I
			DWIN	1324.5	1324.6	1							IIIG
			WEIS				1352.8	1353.3	1				IIIG
			DWIN	1409.4	1414.7	2						IV	
			HARV	1410	1412	1						IV	
			WEIS				1411.9	1412.0	1				IIIB
			WEIS				1415.4	1418.5	1			II	HARM
			HARV				1416	1418	1			II	
			WEIS				1418.5	1418.7	1				IIIG
			WEIS				1421.4	1427.6	2				IIIG
			HARV				1426	1427	2				IIIG
	1540	1820	WEIS				1544.0	1556.0	1				I
			WEIS				1715.8	1716.4	2				IIIG
			HARV				1716		1				IIIG
			HARV				2031	2032	2				IIIG
	2029	2400	CULG				2339.5		1				IIIB
21	0000	0729	CULG				0042	0703					IIIN,W
			CULG	0153.5	0200	2	0153.5	0156	1				IIIGG
			LEAR				0154.7	0200.5	1				CONT
			CULG				0155.5	0157	1				Z
			CULG				0408		1				IIIB
			LEAR				0408.2	0410.5	1				CONT
			CULG				0409.5	0410.5	2				IIIG
	0432	1829	WEIS				0452.3	0454.9	2				IIIG
			CULG				0552.5		2				IIIB
			WEIS				0717.6	0717.9	1				IIIG

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

MAY 1980

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
21			WEIS				0728.7	0729.2	3				IIIG
	0440	1010	BLEN				0728.7	0728.9	3				V
			LEAR				0728.8	0729.0	1				CONT
	0515	1800	DWIN	0728.8	0728.9	1							IIIG
			WEIS				0818.4	0818.5	2				IIIB
			WEIS				0842.4	0842.5	2				IIIB
	1040	1235	BLEN				0904.4	0904.8	2				IIIG
			WEIS				0904.6	0905.0	2				IIIG
	1247	2043	HARV										
	1300	1325	BLEN										
			WEIS				1300.8	1301.7	1				IIIG
	1605	1740	BLEN										
	2029	2400	CULG	2051	2235	1							IS
			CULG	2054	2123	2							IV
			CULG	2056	2056.5	2							IIIG
			CULG				2057	2110	3				IV
			CULG	2057	2100	2	2057	2127	3				II
			PALE				2058.9	2120.0	3				II
			CULG				2059	2130					IIIN,W
			CULG				2110	2340	2				IS,C
			CULG				2130	2340	2				IIIS
			CULG				2205.5		3				IIIB
			CULG				2208	2208.5	2				IIIG
			CULG				2340	2400					IIIS,W
			CULG				2340	2400	1				IS
22	0000	0728	CULG				0000	0215	1				IIIS
			CULG				0000	0245	1				IS
			LEAR				0102.6	0102.7	1				III
			CULG				0215	0245					IIIS,W
			CULG				0326	0717					IIIN,W
			CULG	0348.5	0349	1	0348.5	0349	2				IIIG
	0435	1750	BLEN	0440.5	0441.7	1							DCIM
			CULG	0441	0442	1							IIIN
	0416	1131	WEIS				0515.2	0515.3	1				IIIB
			WEIS				0641.9	0642.6	1				IIIG
			WEIS				0819.5	0819.7	2				IIIG
			WEIS				0954.4	0954.5	2				IIIB
			BLEN	1027.3	1027.7	1							DCIM
			BLEN	1043.3	1043.3	1							DCIM
			BLEN	1222.3	1222.4	1							IIIG
	1536	1821	WEIS				1246.7	1247.3	1				IIIG
			BLEN				1246.7	1247.3	2				IIIG
	0515	1800	DWIN	1247.0	1247.1	1							IIIG
			BLEN	1317.0	1317.5	2	1317.0	1317.5	2				IIIG
			WEIS				1317.1	1317.4	1				IIIG
			WEIS				1508.0	1725.0	1				IIIN
			BLEN	1510	1750 D	1	1140	1750 D	2				I,DC
			BLEN	1525.8	1529.7	1							DCIM
			BLEN	1703.6	1704.3	1							DCIM
			PALE				1911.9	2041.5	1				S
			PALE				2020.3	2021.7	1				CONT
	2042	2245	HARV				2042	2218	1				I
	2029	2400	CULG	2050	2125	1	2103	2300	1				IV
			CULG	2051	2400	1	2059	2400	1				IS,DC
			CULG				2057	2200					IIIS,W
			HARV				2104	2108	2				IV
23	0000	0729	CULG	0000	0457		0000	0046					IS,W
			CULG				0038	0611					IIIN,W
			CULG				0046	0135	1				IS,DC
			LEAR				0120.4	0120.5	1				III
			CULG				0135	0633					IS,W
			LEAR				0224.8	0225.0	1				III
			LEAR				0236.3	0931.0	1				B
	0430	1750	BLEN	0430 E	1750 D	2	0430 E	1750 D	2				I,DC
	0416	1718	WEIS				0445	1805	2				IIIN
			CULG	0457	0707								IN,W
			CULG				0610.5		1				IIIB
			CULG				0611	0633					IIIS,W

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

MAY 1980

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
23			BLEN				0628.7	0634.5	2				IIIG
			CULG				0633	0720	1				IIIS
			CULG				0633	0706	1				II CONT
			CULG				0633	0646	2				IIIN
			BLEN	0644.3	0645.6	2							DCIM
	0510	0735	DWIN	0644.6	0645.6	2							IIIG
	1125	1800	DWIN										
	1358	1505	HARV				1400	1500	1				I
			BLEN	1707.8	1708.2	2							IIIG
	1726	1822	WEIS										
			PALE				1739.0	1804.5	1				S
	2029	2400	CULG	2050	2110	1	2051	2230	1				IS,C
			CULG				2053	2202					IIIS,W
			CULG	2110	2221	1							IS
			CULG				2202	2235	1				IIIS
			CULG	2221	2400								IS,W
			CULG				2230	2400					IS,C,W
			CULG				2235	2400					IIIN,W
24			CULG	0000	0707								IS,W
	0000	0729	CULG				0000	0301					IN,W
			CULG				0011	0711					IIIN,W
			PALE				0049.8	0101.5	2				CONT
			CULG				0053.5	0058	2				IIIGG,Z
			LEAR				0054.2	0100.2	1				CONT
			CULG				0301	0356	1				IS,DC
			CULG				0309.5	0310	1				IIIG
			CULG				0356	0707					IS,W
	0430	1742	BLEN	0430 E	1742 D	3	0430 E	1742 D	3				I,DC,NS
			CULG				0453.5	0454	1				IIIG
			CULG				0558		1				IIIB
	1330	1824	WEIS				0612	1810	2				IN,DC,CONT
	0612	1323	WEIS				0624	1749	2				IIIN
	0510	1815	DWIN	0700	1815	1							IC,W
			BLEN	1216.2	1216.4	1							DCIM
			DWIN	1216.2	1216.3	2							IIIG
			PALE				1843.5	1943.5	1				S
	2029	2400	CULG	2051	2115	1	2051	2400	1				IS,C,DC
			CULG				2055	2135					IIIN,W
			CULG	2115	2144	1							IS
			CULG				2135	2400					IIIS,W
			CULG				2143	2327	1				IIIN
			CULG	2144	2400								IS,W
			PALE				2253.7	2259.3	2				V
			CULG				2254.5	2257.5	3				IIIGG
25			CULG				0000	0712					IIIS,W
	0000	0714	CULG	0000	0230								IS,W
			CULG				0000	0712	1				IS,C,DC
			CULG				0016	0633	1				IIIN
			LEAR				0027.0	0027.4	1				CONT
			LEAR				0104.2	0930.0	1				B
			CULG				0141	0147	2				IIIGG
			CULG				0207	0212	2				IIIGG
			CULG				0218	0218.5	2				IIIG
			CULG	0230	0711	2							IS,C,W
			CULG				0259.5		1				RS,DP
			PALE				0326.5	0327.0	2				V
			CULG				0327.5	0328.5	2				IIIG
			WEIS				0419	1755	2				IIIN
	0415	1824	WEIS				0419	1805	2				IS,DC,CONT
			CULG				0500	0710	1				SCINT
	0510	1815	DWIN	0510	1800	1							IC,W
			DWIN	0743.3	0743.4	2							IIIG
			LEAR				0743.3	0744.5	2				CONT
	1003	1755	BLEN	1003 E	1755 D	3	1003 E	1755 D	3				I,NS
			BLEN	1400.8	1403.7	3							DCIM
			DWIN	1403.5	1403.8	2							IIIG
			SGMR				1404.6	1405.2	1				V
			BLEN	1635.8	1636.6	2							DCIM

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

MAY 1980

DAY	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS: DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
25			BLEN				1712.7	1713.6	2				IIIGG
			PALE				1915.0	1915.4	2				III
			PALE				2000.1	2001.1	2				V
			PALE				2022.7	2025.1	2				CONT
	2029	2400	CULG				2052	2400					IS,W
			CULG	2054	2150								IN,W
			CULG				2105	2400					IIIN,W
			CULG				2119.5	2220	1				N,DC
			CULG	2137.5	2138.5	1	2137.5	2138.5	1				IIIG
			PALE				2137.8	2138.7	2				V
			CULG	2150	2242								IS,W
			PALE				2211.7	2212.5	2				V
			CULG				2212	2212.5	2				IIIG
			PALE				2241.8	2250.5	2				CONT
			CULG	2242	2336	1							IS
			CULG				2242	2242.5	1				IIIG
			CULG				2245		2				IIIB
			CULG				2312.5		1				IIIB
			CULG	2336	2400								IS,W
26			CULG				0000	0705					IIIN,W
	0000	0729	CULG	0000	0346								IS,W
			CULG				0000	0707	1				IS,DC
			CULG	0009.5	0011.5		0009.5	0011.5					IIIGG,W
			CULG	0010	0650	1	0010	0653	1				IIIN
			LEAR				0019.5	0019.8	1				CONT
			LEAR				0029.0	0930.0	1				B
			CULG	0207.5	0208	2	0207.5	0208	2				IIIG
			PALE				0207.8	0208.3	2				III
			CULG	0346	0700	1							IS,DC
			CULG	0407	0407.5	2	0407	0407.5	2				IIIG
	0413	1518	WEIS				0414	1815	2				IS,DC,CONT
	0425	1755	BLEN	0425 E	1755 D	3	0425 E	1755 D	3				I,DC
	0551	1824	WEIS				0428	1805	3				IIIN
	0505	1800	DWIN	0505	1800	1							IC,W
			CULG				0607.5	0608.5	1				IIIGG
			CULG				0614	0615	2				IIIG
			BLEN				0716.4	0719.9	2				IIIGG
			BLEN				0744.3	0750.3	2				IIIGG
			BLEN	0821.0	0903.0	2	0821.0	0903.0	3				IIIGG
			DWIN	0902.0	0902.5	1						IV	F
			BLEN	1003.2	1004.7	2							DCIM
			BLEN	1017.5	1018.3	2	1017.5	1018.3	2				IIIGG
			BLEN	1036.0	1036.5	2	1035.5	1036.5	2				IIIGG
			BLEN	1224.5	1226.5	2	1224.5	1226.5	2				IIIG
			DWIN	1248.7		2							IIIB
			DWIN	1303.1	1304.5	2						IV	
			SGMR				1453.3	1532.8	1				S
			BLEN	1459.3	1459.7	2							IIIG,U
			WEIS				1525.8	1540.8	2			II	HBHARM
			BLEN	1559.8	1600.0	2							IIIB
			PALE				1714.1	1716.2	1				CONT
			BLEN	1752.0	1753.4	2	1752.0	1753.4	2				IIIGG
			PALE				1752.1	1754.4	2				V
			PALE				1923.4	1926.2	3				V
			SGMR				1923.8	1924.5	2				V
			PALE				1934.6	1936.1	2				V
			SGMR				1935.8	1935.9	1				III
			PALE				2036.0	2047.1	2				CONT
	2029	2400	CULG	2051	2400								IS,W
			CULG				2100	2208	1				IS,DC
			CULG				2100	2123					IIIN,W
			CULG				2123	2400	1				IIIS
			CULG				2208	2400	1				IS
			CULG	2236.5	2237	1	2236.5	2237	2				IIIG
			PALE				2236.6	2237.7	2				V
			PALE				2327.5	2328.4	2				III
			LEAR				2327.9	2328.2	1				CONT
			CULG				2328	2328.5	3	2328	2328.5	2	IIIG
			CULG				2349.5	2350.5	2				IIIG

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

MAY 1980

DAY	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS: DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
26			PALE				2349.8	2350.3	2				III
			LEAR				2349.8	2353.8	1				CONT
27			CULG				0000	0705					IIIS,W
	0000	0729	CULG	0000	0223								IS,W
			CULG				0000	0553	1				IS,DC
			CULG				0003	0646	1				IIIN
			LEAR				0021.0	0929.0	1				B
			CULG				0052.5	0053.5	2				IIIG
			PALE				0052.7	0054.7	2				V
			CULG	0223	0707	1							IS,C
			CULG	0304	0306	2							CONT
	1531	1826	WEIS				0414	1803	3				IIIS,DC
	0412	1141	WEIS				0414	1823	3				IS,DC,CONT
	0425	1755	BLEN	0425 E	1755 D	2	0425 E	1755 D	2				I,DC
	0505	1235	DWIN	0505	1235	1							IW
			CULG				0553	0707	2				IS,DC
			CULG	0620	0707		0550	0707	1				SCINT
			LEAR				0638.5	0638.7	2				III
			CULG				0638.5		3				IIIB
			CULG				0639.5		2				IIIB
			BLEN				0737.7	0738.1	2				IIIG
			BLEN	1029.7	1031.6	2							IIIG,U
			BLEN	1158.5	1158.8	2	1158.5	1158.8	2				IIIG
			BLEN				1410.6	1413.5	2				IIIG
			BLEN	1559.3	1605.9	2	1559.3	1605.9	2				IIIGG
			BLEN	1601.8	1604.7	3	1601.8	1605.3	3				II
			WEIS				1601.9	1605.5	3				II HBHARM
			PALE				1952.4	1952.7	2				III
			PALE				2014.7	2015.9	2				V
			PALE				2029.4	2037.9	2				CONT
	2029	2400	CULG	2051	2157	1							IS,C
			CULG				2101	2115	1				IS,C,DC
			CULG				2102	2110	2				IIIS
			PALE				2102.2	2110.4	2				CONT
			CULG				2110	2328					IIIN,W
			CULG				2115	2400	1				IS,DC
			CULG	2157	2400	1							IS
			CULG	2231		1	2231		1				IIIB
			CULG				2328	2329	1				IIIG
			CULG				2328	2400					IIIS,W
28			CULG	0000	0435	1							IS,C
	0000	0729	CULG				0000	0012	2				IS,DC
			CULG				0000	0319					IIIS,W
			CULG				0012	0208					IS,W
			LEAR				0136.2	0136.6	1				III
			CULG				0137	0319	1				IIIN
			CULG				0208	0319	2				IS,DC
			CULG				0209	0217	3	0209.5	0216.5	2	IIIGG,V
			LEAR				0209.2	0218.9	2				CONT
			PALE				0209.3	0217.8	3				V
			LEAR				0218.9	0840.0	1				B
			CULG				0319	0344	2				IIIS
			CULG				0319	0707	2				IS,C,DC
			CULG				0344	0425	1				IIIS
	0411	1827	WEIS				0412	1823	3				IS,DC,CONT
			WEIS				0424	1820	3				IIIS
			CULG				0425	0428	2				IIIS
	0425	1755	BLEN	0425 E	1755 D	3	0425 E	1755 D	3				I,D,NS
			CULG				0428	0700	1				IIIS
			CULG				0434	0558	2				IIIN
			CULG	0435	0709	1							IS
			BLEN				0506.2	0517.3	3				IIIGG
			BLEN	0507.2	0507.8	2							DCIM
			CULG	0507.5	0508	2	0507.5	0508	3				IIIG
			LEAR				0507.8	0508.5	2				V
			CULG	0515	0605	1							IIIN
			BLEN	0604.5	0604.8	2							DCIM
			CULG				0642	0707	1				SCINT

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

MAY 1980

DAY	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS: DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
28			BLEN	0816.2	0816.5	1	0815.9	0817.3	2				IIIG
			WEIS				0901.9	0907.0	3				IIIGG
			BLEN	0904.3	0904.9	2	0901.9	0905.2	2				IIIGG
	1000	1148	DWIN										
			BLEN	1327.7	1328.9	2							DCIM
			BLEN	1419.1	1419.6	2	1419.1	1420.6	2				IIIGG
			SGMR				1419.2	1419.8	3				V
			BLEN	1552.0	1610.5	2							DCIM
	1351	1820	DWIN	1552.5	1555.5	1						IV	
			BLEN	1653.4	1732.8	3	1653.4	1732.8	3			IV	
			DWIN	1701.5	1731.5	2						IV	P
			WEIS				1706.0	1732.5	3				
			SGMR				1717.3	1719.1	2				V
			WEIS				1718	1735	3			II	H,B
			SGMR				1724.9	1728.7	2				V
			SGMR				1809.9	1811.8	2				CONT
			SGMR				1955.1	1955.5	2				CONT
	2030	2400	CULG	2052	2400	1							IS
			CULG				2055	2245	1				IS,C
			CULG				2057	2125					IIIS,W
			CULG				2125	2146	1				IIIS
			CULG				2146	2221	2				IIIS
			CULG	2203	2204	2							IIIGG
			CULG	2220		3	2220		3				IIIB
			CULG				2221	2400	1				IIIN
			CULG				2245	2325	1				IS
			CULG	2324	2325.5	1							IIIGG
			CULG				2325	2400					IS,W
			CULG	2336	2357	1						IV	P
			PALE				2338.3	2346.9	3				V
			LEAR				2338.4	2347.8	2				CONT
			CULG	2338.5	2339	2	2338.5	2347	3	2338.5	2347	1	IIIGG,V
			CULG							2341	2352	1	SWF
29	0000	0729	CULG	0000	0145		0000	0115					IN,W
			CULG				0003.5	0005	2				IIIG
			LEAR				0003.7	0006.1	1				CONT
			CULG				0055	0115					IIIS,W
			CULG				0057	0345	1				IIIN
			CULG				0115	0444					IS,W
			CULG				0115	0125	2				IIIS
			CULG				0125	0345					IIIS,W
			CULG	0145	0328								IS,W
			CULG				0209.5	0210.5	2				IIIGG
			CULG	0328	0708	1							IS
			CULG	0333.5	0346	1							IIIS
			CULG				0334	0335	2				IIIG
			CULG				0340	0341	2				IIIG
			CULG				0345	0448	1				IIIS
	0415	0805	BLEN	0415 E	0805 D	3	0415 E	0805 D	3				I,DC,NS
	0412	0712	WEIS				0417	1807	3				IS,DC
	0716	1828	WEIS				0418	1808	3				IIIN
			BLEN				0418.9	0427.2	2				IIIGG
			CULG				0425.5	0426.5	2	0425.5	0426.5	1	IIIG
			CULG				0444	0706	1				IS,C
			CULG				0448	0523	2				IIIS
	0500	1820	DWIN	0500	1820	1							IC,W
			BLEN	0508.8	0534.0	2	0508.9	0534.0	2				IIIG
			CULG				0510	0512	3				IIIGG,V
			LEAR				0510.0	0514.0	2				V
			CULG				0521	0522	3				IIIG
			CULG				0523	0705					IIIS,W
			WEIS				1343.6	1349.9	3				IIIGG
			SGMR				1344.9	1345.1	1				III
	2030	2400	CULG	2052	2400	1							IS,C
			CULG				2105	2400					IIIN,W
			CULG				2105	2400					IS,W
			CULG				2123.5	2124	1				IIIB
30	0000	0723	CULG	0000	0049	1	0000	0021	1				IS

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

MAY 1980

DAY	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS: DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
30			CULG				0000	0024	1				IIIS
			LEAR				0014.2	0017.1	1				CONT
			PALE				0014.4	0018.7	2				CONT
			CULG				0021	0159					IS,W
			CULG				0024	0424					IIIN,W
			CULG	0049	0227								IS,W
			LEAR				0110.2	0111.1	1				V
			CULG				0110.5	0111	1	0110.5	0111.5	1	SLOW DRIFT
			CULG	0120.5	0121.5	1	0120.5	0121.5	2				IIIG,U
			LEAR				0120.7	0121.6	1				V
			CULG	0227	0449		0159	0419					IN,W
			CULG				0419	0610					IS,W
	0410	1251	WEIS				0424	1757	2				IIIN
			CULG				0424	0614					IIIS,W
	1335	1821	WEIS				0443	1437	2				IN
			LEAR				0443.7	0444.0	1				CONT
			CULG	0449	0535								IS,W
			LEAR				0550.5	0554.5	1				CONT
			CULG				0659.5	0700	1				IIIG
			LEAR				0659.7	0701.0	1				CONT
	0500	1800	DWIN	0659.7	0700.1	1							IIIG
			LEAR				0816.8	0823.2	1				CONT
			LEAR				0830.5	0834.4	1				CONT
			LEAR				0846.8	0853.2	1				CONT
	1123	1755	BLEN	1337	1755 D	2	1337	1755 D	2				I,N
			BLEN				1436.7	1436.9	2				IIIG
			BLEN				1751.8	1752.6	2				IIIG
			PALE				2049.3	2056.6	3				V
			SGMR				2050.3	2056.5	2				CONT
	2030	2400	CULG	2053.5	2056	3	2050	2056	2				IIIGG
			CULG				2101	2104					II W
			CULG				2112	2400					IN,W
			CULG				2214.5	2215					IIIG,W
31	0000	0729	CULG				0004	0005					I,W
			CULG				0112						IIIB,W
			LEAR				0112.5	0112.7	1				CONT
			CULG	0159	0443								IN,W
	0420	1755	BLEN	0420 E	1400	1	0420 E	1400	1				I,DC
			CULG	0443	0505								IS,W
	0450	1800	DWIN										
			BLEN				0450.8	0450.9	2				IIIB
			CULG	0505	0654								IN,W
	0410	1829	WEIS				0540.3	0540.4	1				IIIG
			CULG				0606.5	0608					II W
			WEIS				0736.4	0737.2	1				IIIG
			BLEN				0958.4	0959.0	2				IIIG
			WEIS				0958.8	0959.1	2				IIIG
			WEIS				1142.9	1143.6	2				IIIG
			WEIS				1430.1	1430.7	2				IIIG
			WEIS				1620.6	1620.7	1				IIIB
			WEIS				1715.4	1715.5	2				IIIB
			WEIS				1723.4	1723.5	1				IIIB
			WEIS				1735.5	1735.6	1				IIIB
	2030	2400	CULG				2107	2255					IS,DC,W
			CULG				2108	2237					IIIN,W
			CULG				2132.5		1				IIIB
			CULG	2152	2400		2255	2400					IN,W
			CULG				2258	2258.5	1				IIIG
			CULG	2315.5	2316	2							IIIG

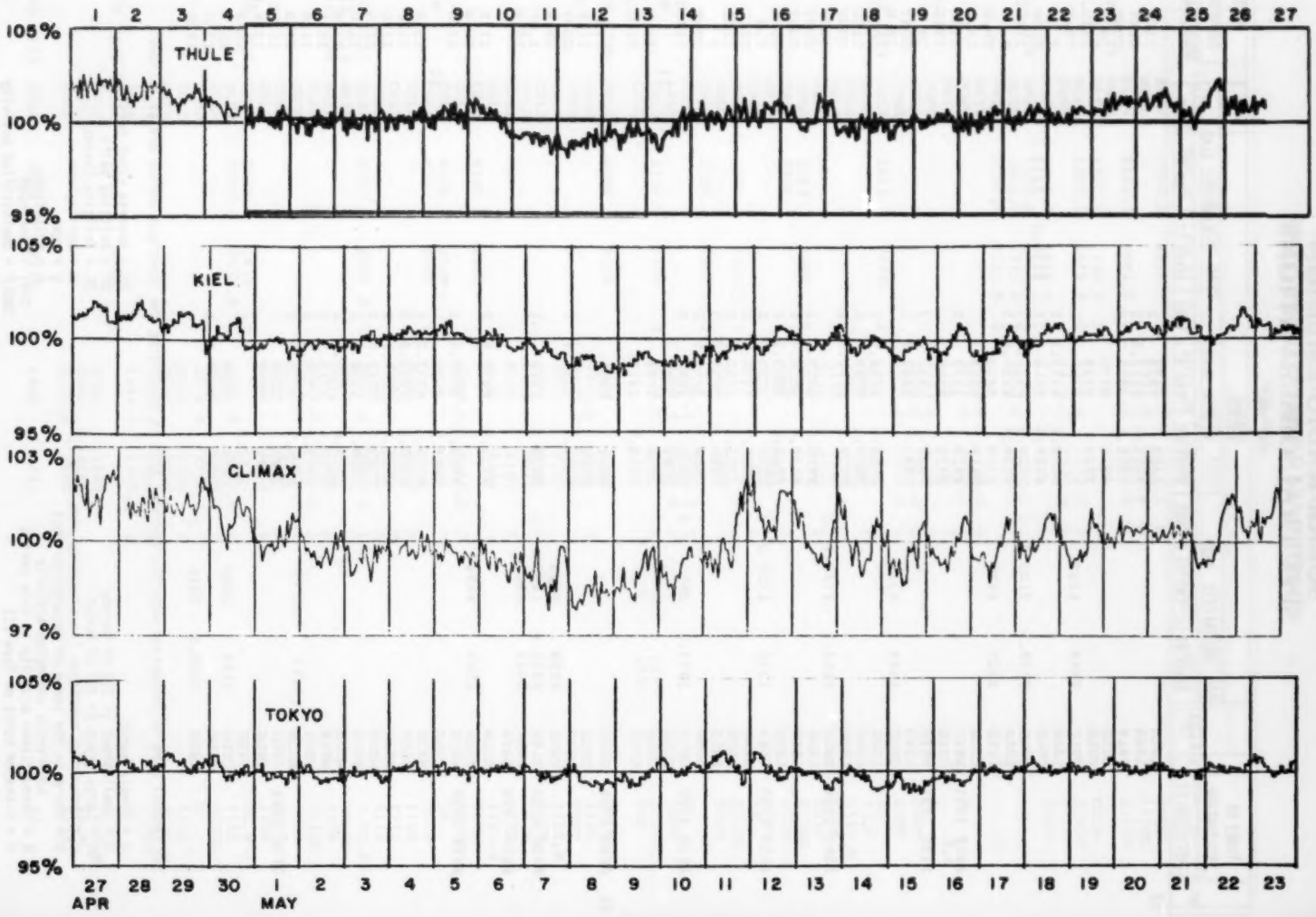
The symbols used in connection with the spectral type in describing the important bursts are as follows:

B = Single burst
G = Small group (< 10) of bursts
GG = Large group (> 10) of burst
C = Underlying continuum (particularly with type I)
S = Storm in the sense of intermittent but apparently connected activity
N = Intermittent activity in this period
U = U-shaped burst of Type III

RS = Reverse slope burst
DP = Drifting pairs
DC = Drifting Chains
H = Herringbone
W = Weak
P = Pulsations
CONT = Continuum
UNCLF = Unclassified activity
DCIM = Fast drift

COSMIC RAY INDICES
(Neutron Monitors)

Bartels Rotation 2006 (April-May 1980)



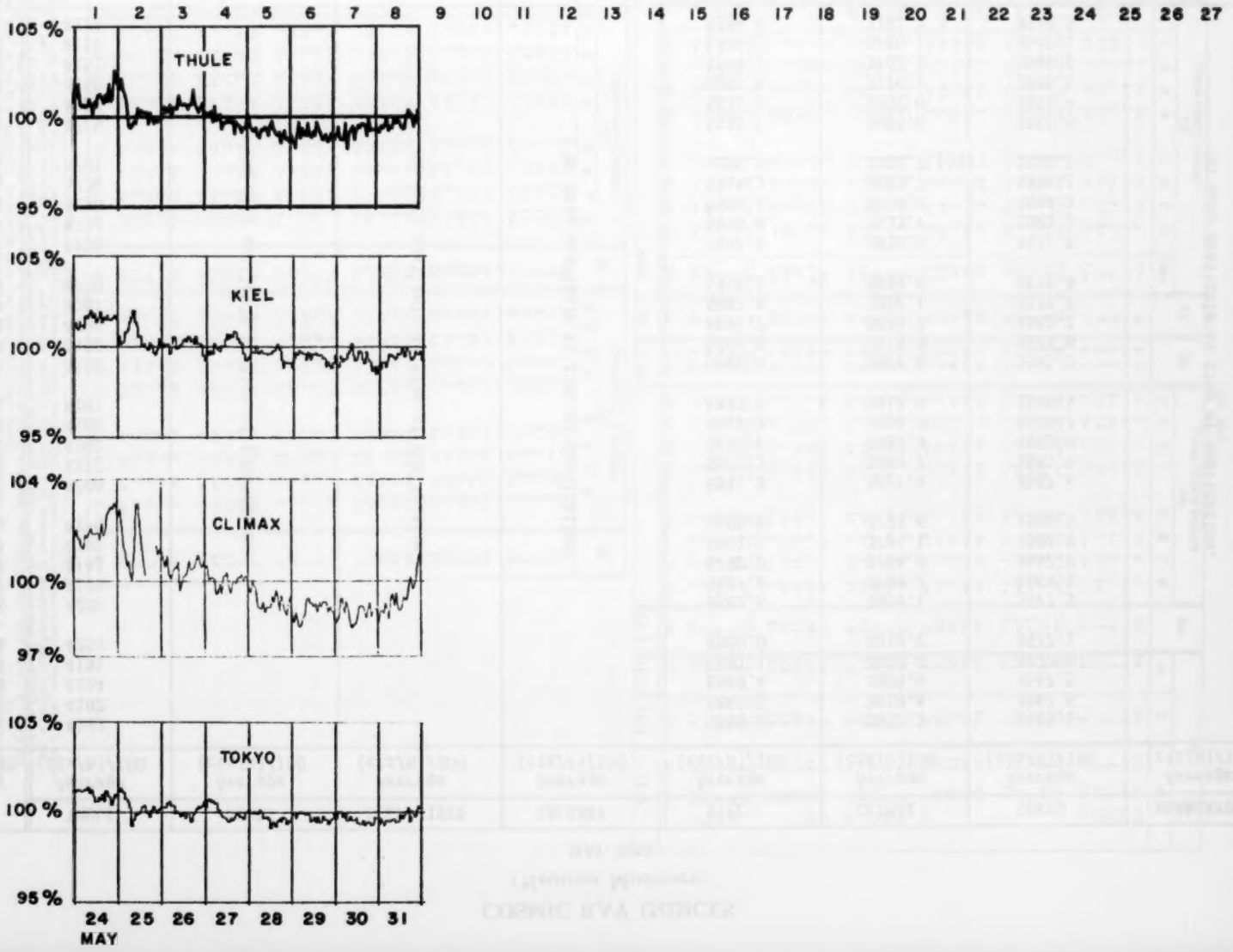
COSMIC RAY INDICES
(Neutron Monitors)

Bartels Rotation 2007 (May 1980)

APR MAY

COSMIC RAY INDICES
(Neutron Monitors)

Bartels Rotation 2007 (May 1980)



COSMIC RAY INDICES

(Neutron Monitors)

MAY 1980

May 1980	THULE Average (cts/h)/100	ALERT Average (cts/h)/100	DEEP RIVER Average (cts/h)/300	CALGARY Average (cts/h)/100	KIEL Average (cts/h)/100	CLIMAX Average (cts/h)100	TOKYO Average (cts/h)/100	HUANCAYO Average (cts/h)/100
1	4193				5855.8	3832.3	3569.6	
2	4182				5855.3	3818.4	3567.5	
3	4184				5869.4	3809.6	3567.5	
4	4191				5891.1	3820.0	3577.0	
5	4201				5880.0	3812.2	3577.1	
6	4201				5863.6	3804.1	3577.3	
7	4149				5827.8	3789.2	3569.8	
8	4141				5792.0	3764.8	3557.0	
9	4162				5801.0	3785.1	3564.0	
10	4170				5806.8	3793.6	3580.5	
11	4200				5841.3	3827.8	3587.6	
12	4212				5875.3	3869.7	3581.5	
13	4203				5870.6	3830.3	3563.0	
14	4186				5857.3	3830.9	3559.2	
15	4181				5843.0	3812.8	3549.5	
16	4192				5860.0	3822.6	3561.0	
17	4195				5860.0	3816.3	3574.8	
18	4204				5891.2	3833.7	3580.2	
19	4207				5887.0	3826.1	3579.9	
20	4230				5906.5	3839.8	3578.8	
21	4238				5907.5	3838.5	3571.9	
22	4233				5909.0	3833.7	3581.5	
23	4230				5904.5	3858.2	3584.3	
24	4236				5916.3	3883.7	3591.1	
25	4201				5855.9	3860.7 (38)	3565.6	
26	4215				5835.5	3825.6	3560.0	
27	4183				5831.1	3807.0	3556.4	
28	4158				5801.6	3776.1	3545.5	
29	4151				5794.7	3762.1	3546.6	
30	4159				5786.2	3758.1	3542.1	
31	4178				5795.8	3781.2	3546.8	
MEAN	4192				5854.2	3816.7	3568.2	

No data available at time of publication.

No data available at time of publication.

No data available at time of publication.

No data available at time of publication.

GEOMAGNETIC ACTIVITY INDICES

MAY 1980

Day		Three-Hourly Indices Kp								Sum	Ap	Cp	Three-Hourly Indices Km								Am	aa			
		1	2	3	4	5	6	7	8				1	2	3	4	5	6	7	8		N	S	M	
1		3	2	1-	1+	3-	3-	2+	1	16-	8	0.5	3-	2	1	2-	2+	2+	2	1	15	16	10	11	16 CC
2	Q5	1+	1	1+	1	1	1+	1	1-	9-	4	0.1	1	1	2	1	1-	1	1-	0+	7	8	3	5	6 CC
3	Q1	0+	1-	1	1	1-	1-	0+	1	6-	3	0.1	0+	0+	1	1-	0+	0+	0+	1	4	6	3	4	6 CC
4	Q9	0+	2-	1-	1+	2	2-	1-	0+	9-	4	0.1	0+	1+	1-	1+	2-	1	0+	0+	6	11	6	7	11 CC
5		0+	1-	2-	2-	2+	2+	2	3-	14-	7	0.3	0	0+	2-	1+	2-	1+	2+	3	12	14	9	5	19 K
6		3-	3-	3-	3-	3	2+	3-	3-	21+	12	0.7	2+	2+	3+	3-	3-	1+	2+	3-	21	26	17	21	23
7		0+	1-	2	2-	2-	3-	4	2	15	9	0.5	1-	1-	2+	2-	2-	3-	3	2	15	19	11	8	22
8		3	3	2-	1-	1+	1-	1	2-	13	7	0.4	3-	3	2	1-	1	1-	1	1+	12	15	5	14	6 C
9	D4*	3	3	2+	3+	3	2+	5-	4	26-	18	1.8	3	3-	2	3+	3	3-	4-	3+	29	34	25	23	37
10		3+	1+	1+	2-	1+	1+	2+	2+	15	8	0.4	3+	2-	1+	2-	1+	1+	2	2+	14	19	9	13	15
11	D1	4-	2	4-	4	4+	4+	6	6	34	38	1.4	3+	2	4-	4-	3+	4-	4+	5-	48	54	46	42	59
12	D3	5-	5	4-	3+	3-	3-	3	3	28	23	1.1	5-	4+	3-	3-	2+	2+	3-	3-	34	34	23	36	22
13		2+	3-	3-	2-	1-	2	3	5	20	14	0.8	2+	2+	2+	2-	1-	2-	3-	4	20	23	15	13	26
14	D5*	4+	4-	2+	2	2+	3	4+	2+	24+	17	0.9	4	3+	2+	2	2	2+	3	3-	26	34	14	21	28
15		1+	2	3-	1	1+	1-	1-	2-	11+	6	0.3	1	2-	3-	1	1+	0+	1-	1+	9	10	9	11	8 CK
16	Q4	1	1+	1+	1	0+	0+	0+	0	6-	3	0.1	1+	1	1+	1	1-	0	0	0	5	5	4	5	4 CC
17	Q2	0	0+	0+	1-	1-	1-	1	2-	5+	3	0.1	0	0	0	0+	0	0+	1-	1+	3	5	2	2	5 CC
18	Q7	0	0+	1-	2-	1	2	1+	1-	8-	4	0.1	0+	0	1-	1+	1+	2-	1	0+	6	10	7	6	11 CC
19		0+	1-	2-	2	3	3-	2+	2-	14+	8	0.4	1-	1	1+	2-	3-	3-	2	1+	13	17	10	12	24
20	Q8	2	1+	2-	1	1+	1	1	0+	10-	5	0.2	2-	1+	1+	1+	1+	1	1-	0+	8	12	4	9	7 CK
21	Q6	0+	0	1	1	1	1	1+	2	8-	4	0.1	0+	0	1-	1+	1-	1-	1	2-	6	10	3	4	10 CC
22		1	2-	2	2-	2+	2+	1+	1	13+	6	0.3	1	1+	2-	1+	2	2	1	1-	10	16	6	10	12 CC
23		2+	2	1	2-	4+	3	2	2-	18	11	0.6	2-	2+	1+	1+	3+	3-	1+	2-	17	23	20	13	31
24		2	1	1	2+	3-	3	4	4-	20-	12	0.7	2-	1	1	2	2+	3-	3+	3+	20	23	20	12	31
25	D2	3	3	5	6+	6-	4-	1+	2+	30+	34	1.4	3	3	5-	6-	5+	3	1+	2	52	42	58	66	35
26		3-	1	2-	3-	1	1-	1+	3-	14-	7	0.4	2+	1-	2-	2+	1-	1-	1+	2+	11	16	4	9	12 C
27	Q3	1	1+	1-	1-	1-	1	1-	0	6	3	0.1	1+	1	1-	1-	0+	1-	0+	0	4	7	4	6	5 CC
28	Q8	1+	1+	1-	2-	1+	1+	1-	0+	9-	4	0.1	1+	1-	1-	1+	1	1+	1-	0+	6	9	4	8	6 CC
29		0+	1-	1	1-	1	1+	3+	2-	10	6	0.3	0+	0+	1-	1	1	1	3-	2-	8	12	4	4	12 CK
30		3-	2	3	2	2+	3-	3-	2-	19	10	0.6	2+	2	3	2	2-	2+	2	2	17	23	12	18	17
31		3-	3-	2+	2+	3-	4-	2+	5-	23+	16	0.9	2+	3	2+	2-	3-	3+	2-	5-	28	27	24	22	29
										Mean	10	0.48									15.7	18.7	12.9	16.8	

Day	Three-Hourly Indices Kn								An	Three-Hourly Indices Ks								As
	1	2	3	4	5	6	7	8		1	2	3	4	5	6	7	8	
1	3-	2+	1+	2-	3-	3-	3-	2-	18	3-	2	1	1+	2-	2	1+	1-	12
2	1+	1+	2	1+	1	1+	1+	1-	9	1-	1	2-	1-	0+	0+	0+	0	4
3	1-	0+	1+	1+	1	1-	1-	1+	6	0	0+	1-	0+	0	0	0	1-	2
4	0+	1+	1-	2-	2	2-	1-	1-	8	0	1+	0+	1-	1+	0+	0	0	4
5	0	1-	2-	2	2+	2	2+	3-	14	0	0+	1+	1	1	1-	3-	3	10
6	2+	2+	3	3	3-	2	2+	2+	22	2+	3-	3+	2	3-	1-	2	3-	20
7	1-	1-	3-	2+	2	3-	3+	2+	18	0+	0+	2	1	1+	2+	3-	2-	11
8	3-	3-	2+	1	1+	1	1+	2-	14	3-	3	1+	0	0+	0	1-	1-	9
9	3	3	2	3+	3-	3-	4	4-	31	3	3-	2+	3	3	3-	3+	3+	28
10	3+	2-	2-	2+	2-	2-	3-	3-	18	3+	1+	1+	1	0+	1-	1+	2-	11
11	4-	2+	4-	3+	4-	4-	5-	5-	50	3	2-	4-	4	3+	3+	4+	5-	46
12	4	4	3	3	2+	3-	3-	3	32	5	4+	3-	3-	2	2	3-	3-	36
13	2	2+	2+	2+	1+	2	3	4	23	2+	2+	2	1+	0	1	2+	4	18
14	4-	3+	2+	2+	2+	3-	3+	3-	27	4+	4-	2	1+	2-	2-	3-	3-	25
15	1+	2	3-	1+	1+	1-	1	2-	11	1	2-	2+	0+	1-	0	0+	1+	7
16	1+	1+	1+	1+	1-	0+	0+	0	6	1+	1	1+	1-	0+	0	0	0	4
17	0	0	0+	0+	0+	1-	1+	2-	4	0	0	0	0	0	0	0	1	1
18	0+	0	1-	2-	2-	2+	2-	1	8	0+	0+	1-	1	1-	0+	0	0	3
19	0+	1	2-	2	3	3-	2	2	15	1-	1-	1	1+	2+	2+	2-	1	10
20	2	1+	2	2-	2-	2-	1+	1-	11	2-	1+	1	1-	1-	0+	0	0	5
21	0+	0+	1+	2-	1+	1+	2-	2+	9	0+	0	0+	1-	0	0	0	1+	3
22	1+	2-	2	2	3-	3-	1+	1+	14	0+	1+	2-	1-	1	1+	0+	0+	6
23	2	2+	1+	2	4	3	2	2	21	2-	2	1	1-	3-	2+	1-	1+	12
24	2	1+	1+	2+	3-	3	4-	4-	25	2-	1-	1-	2-	2-	2+	3+	3+	16
25	3	3-	5-	6-	5+	3	2-	2+	53	3	3	5-	5+	5	3	1-	2-	51
26	2+	1	2+	3-	1	1+	2-	3-	15	2+	1-	1+	2-	0	0	0+	2	8
27	1+	1+	1+	1+	1-	1	1-	0+	6	1+	1	0	0	0	0	0	0	2
28	2-	1	1	2	1+	2-	1+	0+	9	1	1-	0+	1	0+	0+	0	0	3
29	1-	0+	1	1+	1+	2-	3	2+	12	0+	0+	0+	0+	1-	0	2	1	5
30	3-	2	3	2+	3-	3-	3-	2+	22	2	2	3-	1+	1-	1+	1+	1+	12
31	2+	3	2	2	3-	4-	2	4+	28	3-	3+	2+	2-	2+	3	1+	5-	29
									Mean	18.0								13.3

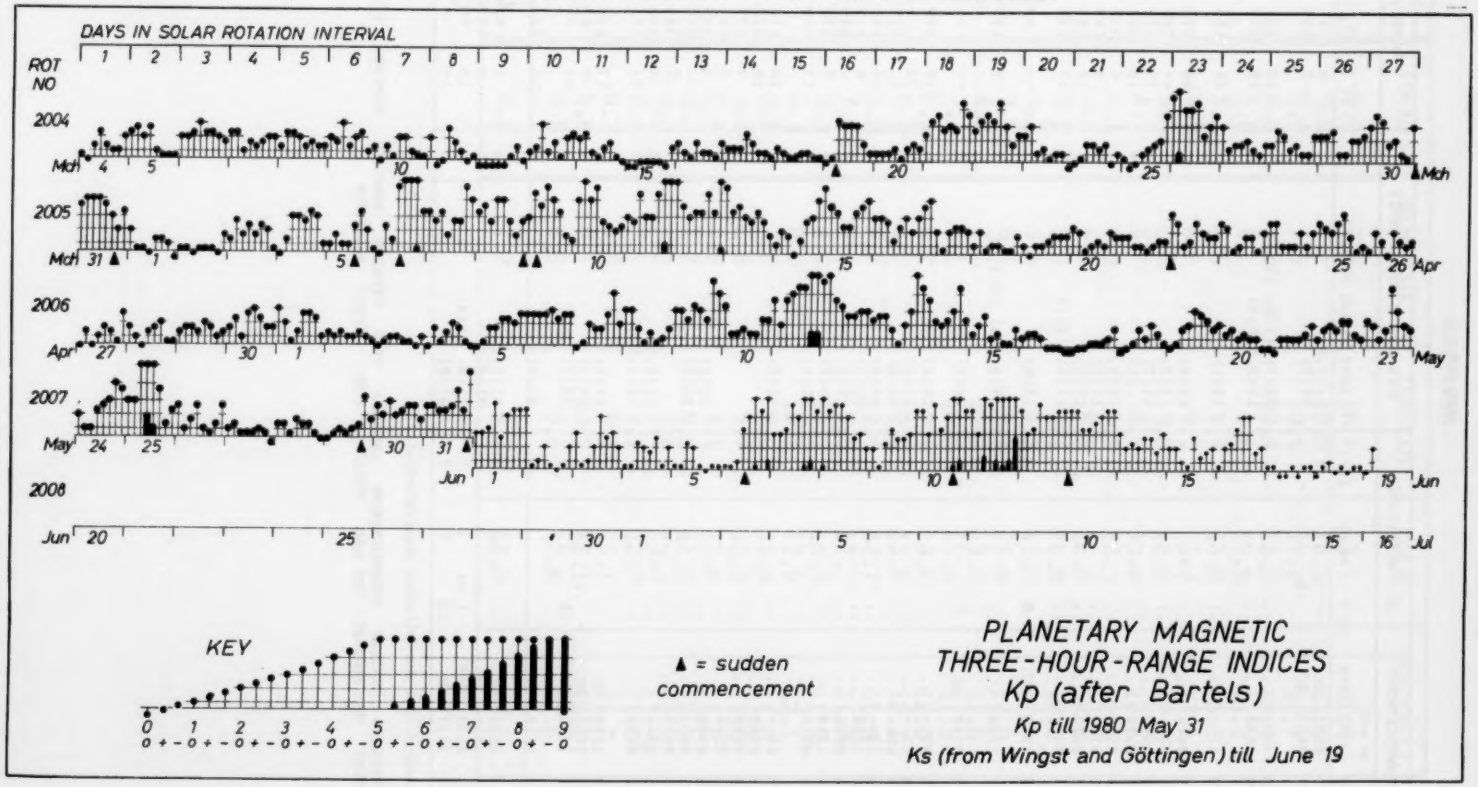
Quiet days (Q) and disturbed days (D), geomagnetic planetary three-hour-range indices (Kp) (integers alone are equivalent to those normally given with a small zero), magnetic character figures (Cp), and average amplitude (Ap) (unit 2 nT) prepared by Geophysikalisches Institut at the University of Göttingen, F.R. of Germany for the International Service of Geomagnetic Indices. Ten most quiet days [Q1-Q0(10)] and five most disturbed days [D1-D5] are ordered from most quiet or disturbed, respectively. A or K means "not really quiet" (A = "Ap>6", K = "Ap≤6 but one Kp>30 or two Kp values≥3-"). An asterisk means "not really disturbed" (Ap<20).

Geomagnetic three-hourly indices Km, Kn, Ks, daily mean values Am, An, As (unit 1nT), and indices aa are prepared by M. Menvielle of the Institut de Physique du Globe, Paris, France. For aa indices daily north (N) and south (S) values, and half-daily antipodal mean (M) values are given. Quiet 24-hour and 48-hour intervals centered on 1200 UT are indicated for really quiet as C and for quiet but with some slightly disturbed three-hour intervals as K. The first hundred years series of aa is in IAGA Bulletin No.33, and complementary data are in IAGA Bulletin No.39.

DAILY AVERAGE INDICES Ap

	1979							1980				
DAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY
1	5	7	16	10	10	16	9	24	10	3	4	8
2	6	4	11	5	7	12	11	12	9	3	3	4
3	4	14	10	9	13	10	9	18	3	5	7	3
4	6	9	16	10	9	10	16	16	4	5	11	4
5	4	9	8	17	6	2	7	12	3	7	7	7
6	34	22	18	15	36	3	6	8	33	9	28	12
7	26	27	10	6	32	12	4	5	12	7	18	9
8	14	9	7	6	37	14	10	6	17	6	17	7
9	15	6	6	5	23	19	7	3	11	7	20	18
10	14	6	7	9	17	6	5	3	4	4	22	8
11	10	4	10	14	10	10	5	11	4	4	30	38
12	7	11	18	8	8	7	4	4	3	1	28	23
13	8	16	76	8	12	35	4	23	2	7	18	14
14	7	14	7	10	6	13	4	9	18	5	10	17
15	10	15	4	8	8	3	9	6	33	2	20	6
16	16	11	5	14	8	12	10	9	40	4	12	3
17	14	14	8	11	4	8	13	13	6	5	11	3
18	6	15	11	64	3	4	7	4	10	4	4	4
19	6	11	35	6	5	7	6	4	10	10	5	8
20	8	18	42	22	6	10	4	6	6	4	6	5
21	15	9	22	23	10	6	4	6	4	18	5	4
22	24	6	12	6	14	2	15	5	4	16	9	6
23	19	6	5	7	6	4	3	5	9	6	6	11
24	10	5	13	15	12	24	7	5	6	4	7	12
25	9	3	22	19	14	15	2	7	13	6	9	34
26	20	17	15	19	8	4	10	6	14	30	5	7
27	10	23	12	15	6	4	12	24	14	7	5	3
28	4	10	10	16	9	2	16	27	10	7	4	4
29	7	24	77	15	11	4	32	26	7	8	6	6
30	10	9	15	18	5	15	20	10		11	8	10
31		3	12		5		9	5		21		16
MEAN	12	12	18	14	12	10	9	10	11	8	11	10

GEOMAGNETIC ACTIVITY INDICES



PRINCIPAL MAGNETIC STORMS

MAY 1980

OBS. 3 letter code	GEOMAG-NETIC LATI-TUDE	COMMENCEMENT DAY	hr min (UT)	TYPE	SC - AMPLITUDES D(')	H(γ)	Z(γ)	MAXIMUM 3 HOUR - INDEX K DAY(3 HOUR PERIOD)	K	RANGES D(')	H(γ)	Z(γ)	UT END DAY	HOUR
HON	21.1N	07	0803	SC	--	11	3	07(3,8)	3	3	31	11	08	02
HYB	07.6N	07	0803	SC	- .4	19	- 1	07(7)	4	7	122	32	08	10
FRD	49.6N	09	----	..	..	..	..	09(7) 11(8) 12(2)	5	24	121	81	14	--
HYB	07.6N	09	1800	..	..	..	..	11(3,4,5,7)	5	10	172	46	12	06
NEW	55.1N	10	17--	..	..	..	..	12(1)	5	28	185	226	15	10
COL	64.6N	11	06--	..	..	..	..	11(4)	5	99	710	510	12	23
SIT	60.0N	11	07--	..	..	..	..	12(2)	7	--	780	410	12	13
WIT	54.2N	11	05--	..	..	..	..	11(7)	6	36	170	70	12	07
GUA	04.0N	11	0125	..	..	..	..	11(1)	5	10	200	20	12	09
HUA	00.6S	11	0125	..	..	..	..	11(6,7)	5	6	329	48	12	06
PMG	18.6S	11	01--	..	..	..	..	11(1)	5	5	190	80	12	16
HER	33.7S	11	0100	..	..	..	..	11(8)	5	19	104	56	12	12
GNA	43.2S	11	01--	..	..	..	..	11(7) 12(1)	5	17	120	100	13	00
KGL	56.5S	13	2056	SC	8	4	2	13(8)	5	--	--	--	14	07
HYB	07.6N	21	1700	..	..	..	..	22(2,3,4) 23(2,5)	3	7	134	33	23	18
KGL	56.5S	22	0740	SC	- 6	-17	- 5	23(2)	4	--	--	--	28	08
COL	64.6N	24	07--	..	..	..	..	25(4)	6	130	860	600	26	03
SIT	60.0N	24	12--	..	..	..	..	25(5)	7	70	--	730	25	23
NEW	55.1N	24	08--	..	..	..	..	25(4)	7	51	512	492	26	13
FRD	49.6N	24	12--	..	..	..	..	25(4)	6	24	152	114	26	--
SJG	29.9N	24	1600	..	..	..	..	25(4)	5	8	112	19	26	08
HYB	07.6N	24	0835	..	..	..	..	25(5)	8	9	298	32	26	13
HUA	00.6S	24	1250	..	..	..	..	25(5)	6	6	370	59	25	16
GNA	43.2S	24	09--	..	..	..	..	25(4)	6	17	150	160	26	00
WIT	54.2N	25	03--	..	..	..	..	25(4)	6	20	170	95	25	16
JAI	17.3N	25	0500	..	..	..	..		-	10	227	69	26	03
SHL	14.6N	25	0500	..	..	..	..		-	7	307	62	26	03
UJJ	13.5N	25	0500	..	..	..	..		-	9	241	55	26	03
ABG	09.5N	25	0500	..	..	..	..	25(4)	7	9	250	56	26	03
GUA	04.0N	25	0632	..	..	..	..	25(5)	6	--	210	20	25	16
ANN	01.5N	25	0500	..	..	..	..		-	7	345	72	26	03
PMG	18.6S	25	00--	..	..	..	..	25(4,5)	6	6	250	70	25	17
HER	33.7S	25	0600	..	..	..	..	25(3,4,5)	5	21	171	76	25	16
FRD	49.6N	29	1832	SC	2	16	- 3	31(8)	5	17	126	32	02	--
HYB	07.6N	29	1833	SC	- .1	13	- 1	30(3)	4	8	85	30	31	07
KGL	56.5S	29	1832	SC	10	11	3	30(3)	3	--	--	--	30	09
COL	64.6N	30	1518	SC*	..	..	..	01(4)	6	126	900	550	01	19
HON	21.1N	31	2137	SC	--	20	5	01(4)	4	1	62	17	02	01
HYB	07.6N	31	2138	SC	- .3	13	- 1	01(4)	5	9	154	51	02	01
GNA	43.2S	31	2137	SC*	1.9*	3	7	* 31(8) 01(4)	5	15	90	110	01	23
KGL	56.5S	31	2137	SC	10	6	2	31(8)	5	--	--	--	02	11

Reports were received from the following observatories:

ALIBAG ANNAMALAINAGAR COLLEGE FREDERICKSBURG GNANGARA GUAM HERMANUS HONOLULU HUANCAYO HYDERABAD JAIPUR
KERGUELEN NEWPORT PORT MORESBY SAN JUAN SHILLONG SITKA UJJAIN WITTEVEEN

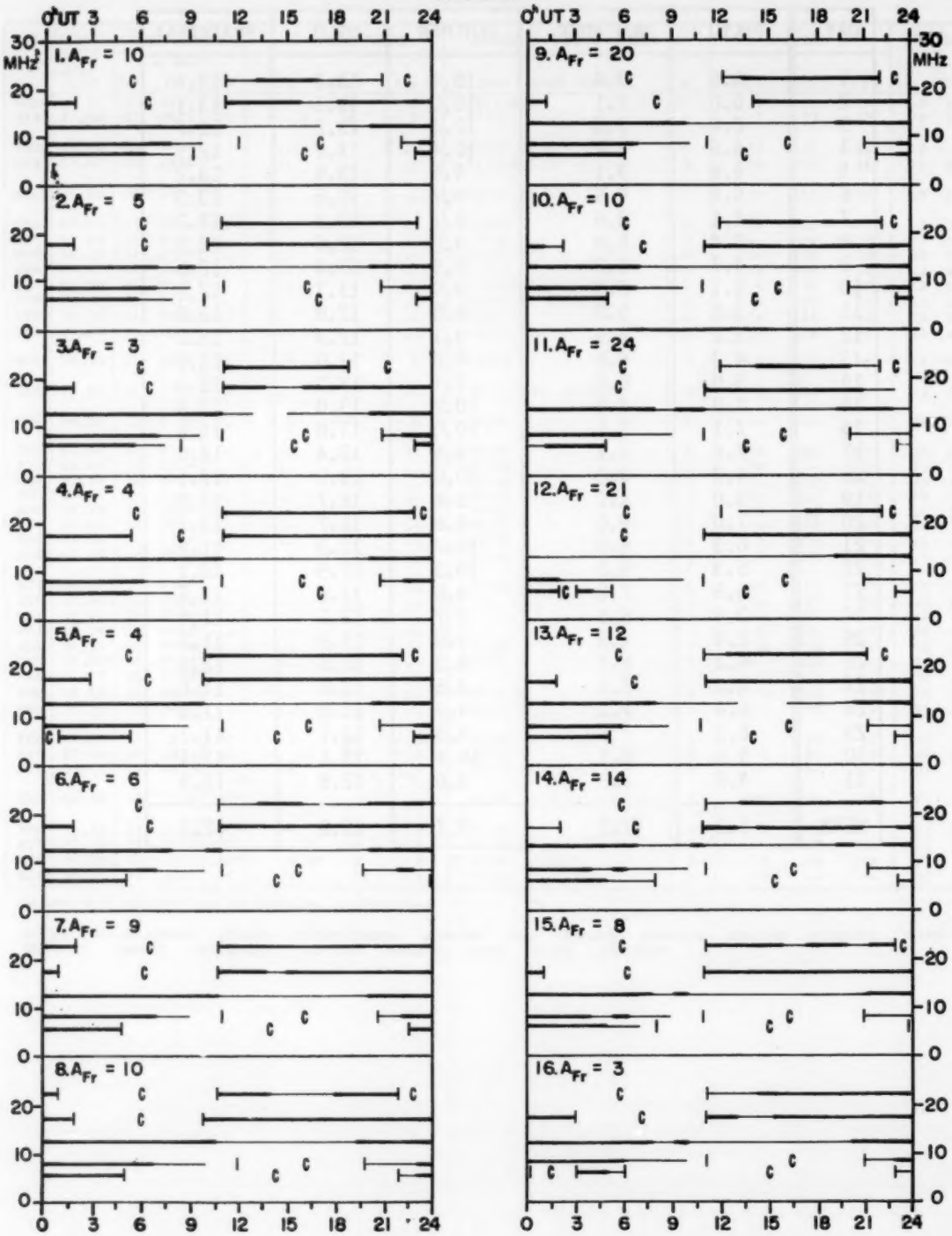
RADIO PROPAGATION QUALITY INDICES

MAY 1980

DAY	TOKYO	NEW YORK	TEHERAN	OSLO	BRACKNELL
1	5.8	7.4	10.4	13.1	12.4
2	6.0	8.1	10.0	13.3	13.1
3	6.6	7.5	10.4	13.2	12.7
4	6.6	8.8	10.4	13.0	12.9
5	5.6	9.1	9.8	13.5	13.2
6	5.1	6.5	9.7	13.8	13.3
7	4.1	8.6	9.1	13.3	13.3
8	5.4	6.8	9.8	12.6	12.5
9	4.7	6.7	8.9	13.0	12.6
10	5.1	6.9	9.9	13.3	12.8
11	3.5	5.8	8.8	12.8	12.8
12	3.2	5.9	9.1	12.9	12.0
13	4.3	6.8	9.8	13.0	12.5
14	3.0	6.6	9.1	13.0	12.0
15	4.8	7.0	10.2	13.0	11.8
16	7.1	7.1	10.0	13.8	11.8
17	7.6	8.1	9.5	13.4	12.0
18	6.2	8.0	10.0	13.5	12.1
19	5.0	8.2	9.6	12.7	11.8
20	7.0	6.6	9.6	12.7	11.7
21	6.3	6.9	10.2	13.3	11.9
22	6.3	8.0	10.3	12.9	12.1
23	5.5	7.8	9.6	13.0	11.6
24	3.6	6.6	9.7	12.3	11.4
25	2.4	4.9	9.5	11.9	11.8
26	4.3	6.7	9.3	12.6	12.2
27	6.0	7.3	9.5	13.0	11.6
28	6.4	7.1	9.7	13.0	11.3
29	6.2	7.6	9.5	13.1	11.7
30	5.6	8.1	10.1	13.1	12.1
31	4.8	6.8	9.6	12.8	11.8
MEAN	5.3	7.2	9.7	13.0	12.2

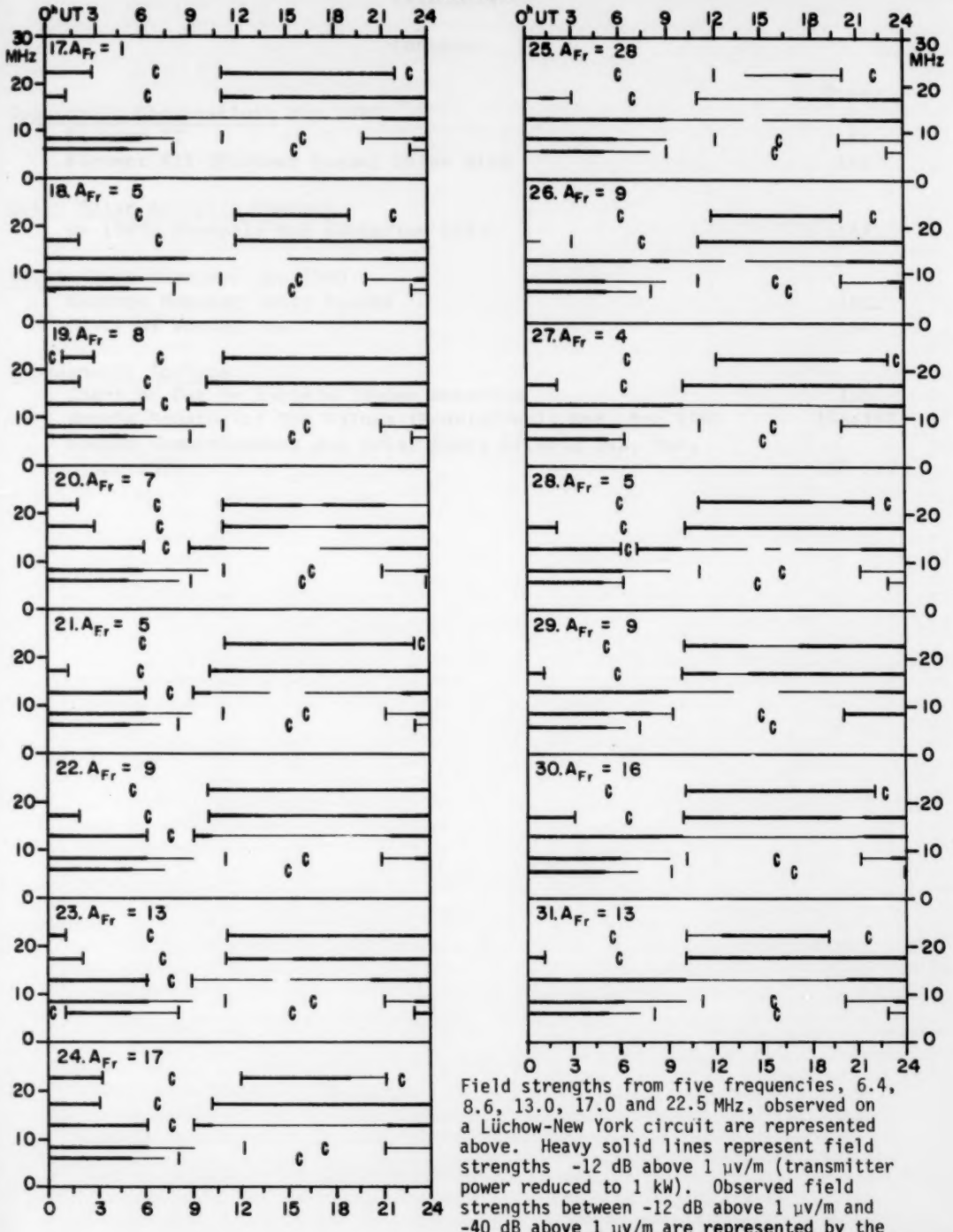
TRANSMISSION FREQUENCY RANGES -- NORTH ATLANTIC PATH

MAY 1980



TRANSMISSION FREQUENCY RANGES -- NORTH ATLANTIC PATH

MAY 1980



Field strengths from five frequencies, 6.4, 8.6, 13.0, 17.0 and 22.5 MHz, observed on a Lüchow-New York circuit are represented above. Heavy solid lines represent field strengths -12 dB above 1 μv/m (transmitter power reduced to 1 kW). Observed field strengths between -12 dB above 1 μv/m and -40 dB above 1 μv/m are represented by the fine line. **Adapted from Observations by Deutsche Bundespost**

SGD 431 Part I (Prompt)

LATE DATA

Contents

	Page
Spacecraft Observations May 1980	
Pioneer IX	160
Pioneer XII (Pioneer Venus) Solar Wind	161
Daily Solar Activity Centers	
He 10830 Synoptic Map (Rotation 1693)	162
Cosmic Rays Huancayo Apr 1980	
Neutron Monitor Daily Values	163
Chart of Variations	164
Geomagnetic Indices	
Chart of Dst by Bartels 27-day Rotation	165
Hourly Equatorial Dst Values (Provisional) Mar, Apr 1980	166-167
Sudden Commencements and Solar Flare Effects Feb, Mar, Apr 1980	168-169

160
Late
May 80

PIONEER IX

MAY 1980

Date May '80	DSN Coverage (UT)	Data Time (UT)	ESP (°)	SOLAR WIND[1] U_{H^+} (km/sec)	N_{H^+} (H^+/cc)	T_{H^+} (x10^{6}°K)	TAU (days)	IP E-FIELD[2] 400 Hz (mv)	IMF[3] |B| (γ)	IMF[3] φ (°)	COSMIC RAY PROTONS[4] (particles/sec) >13.9 Mev	>40 Mev
1	0000-0400	0000	150.6	630.	All	other	11.4					
		0100		630.		instruments						
		0200		630.								
		0300		608.								
		0400		585.								
6	2330-0259	0000	150.6	338.			11.5	All other instruments OFF.				
		0100		325.								
		0200		325.								
		0300		325.								
12	2304-2400	2300	150.7	338.			11.54	off	6.4	080.	off	
13	0000-0657	0000		350.				off	---	---	off	
		0100		350.					6.1	112.		
		0200		314.					6.5	119.		
		0300		338.					6.2	136.		
		0400		338.					6.1	230.		
		0500		325.					5.5	187.		
		0600		325.					4.7	153.		
		0700		325.					5.1	065.		
19	2326-0644	0000	150.4	350.			11.56	off	5.2	278.	off	
		0100		350.					5.1	355.		
		0200		350.					5.5	331.		
		0300		350.					4.2	335.		
		0400		350.					6.6	288.		
		0500		350.					6.2	034.		
		0600		350.					7.5	287.		
		0700		350.					7.3	041.		
26	0655-1228	0700	150.1	542.			11.48	off	16.8	292.	off	
		0800		564.					26.4	265.		
		0900		564.					13.6	059.		
		1000		542.					23.7	115.		
		1100		542.					26.7	309.		
		1200		542.					30.6	104.		
30	1440-1914	1500	149.7	542.			11.5	off	2.6	115.	off	
		1600		564.					data v. noisy			
		1700		564.					" " "			
		1800		542.					" "			
		1900		542.					5.3	189.		

[1] Wolfe - NASA/ARC
[2] Scarf - TRW, Inc.
[3] Sonett and Colburn - NASA/ARC
[4] Webber - Univ. of N.H.

ESP = Earth-Sun Probe Angle.

Note: Data sampled hourly unless otherwise noted.

PIONEER XII

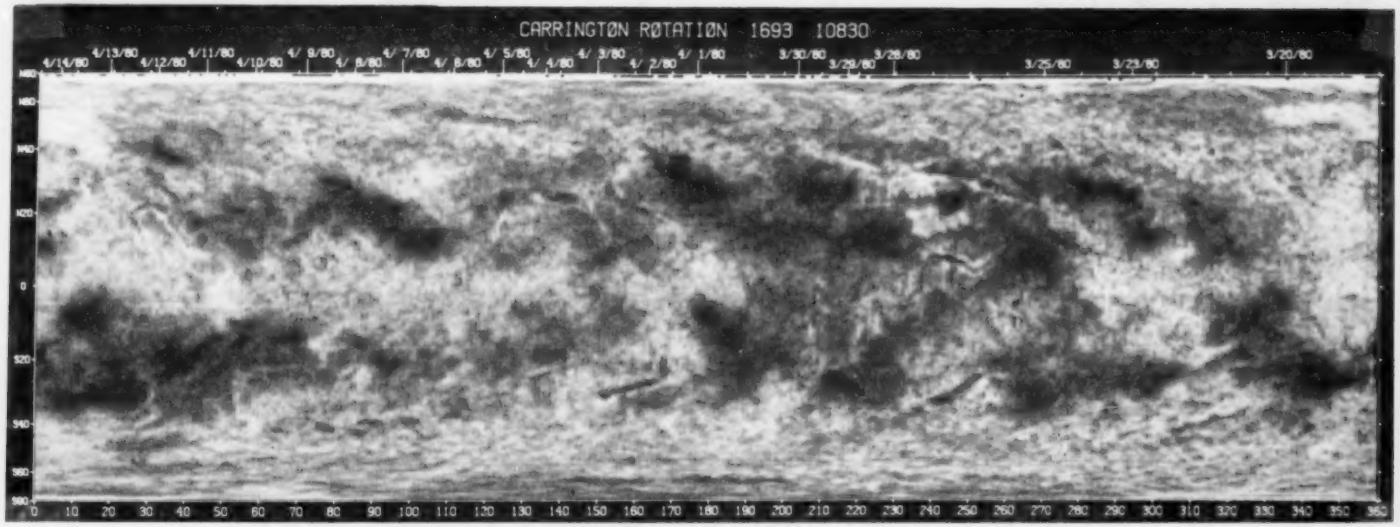
MAY 1980

DATE MAY 1980	TIME (UT)	ESV (°)	U_{H+} (km/sec)	N_{H+} (H^+/cc)	T_{H+} ($\times 10^6$°K)
1	1228	029.	384.	39.3	0.11
2	1953		323.	29.5	.072
3	2000		333.	26.3	.055
4	1603		318.	28.2	.039
5	1128		315.	12.3	.028
6	1547		496.	6.8	.019
7	1657		388.	17.8	.009
8	2306		449.	28.6	.251
9	2034		628.	5.9	.244
10	1707		633.	4.9	.31
11	0429		586.	5.7	.148
12	2032		397.	23.9	.156
13	1208		407.	10.1	.143
14	2252		313.	4.6	.023
15	1831	020.	309.	18.7	.012
16	1405		291.	30.4	.017
17	1607		270.	50.9	.024
18	2329		290.	156.3	.026
19	1653		318.	41.2	.017
20	0743		294.	27.9	.042
21	2100		264.	39.2	.053
22	1217		276.	55.1	.056
23	1758		345.	18.5	.142
24	0622		331.	21.9	.109
25	1457		336.	19.9	.036
26	1355		315.	24.2	.035
27	1208		283.	31.4	.032
28	1307		320.	18.3	.021
29	0507		300.	15.9	.043
30	2311		299.	39.2	.035
31	2054		290.	37.2	.054

HELIUM 10830Å SYNOPTIC MAPS

CARRINGTON ROTATION 1693

KITT PEAK NATIONAL OBSERVATORY

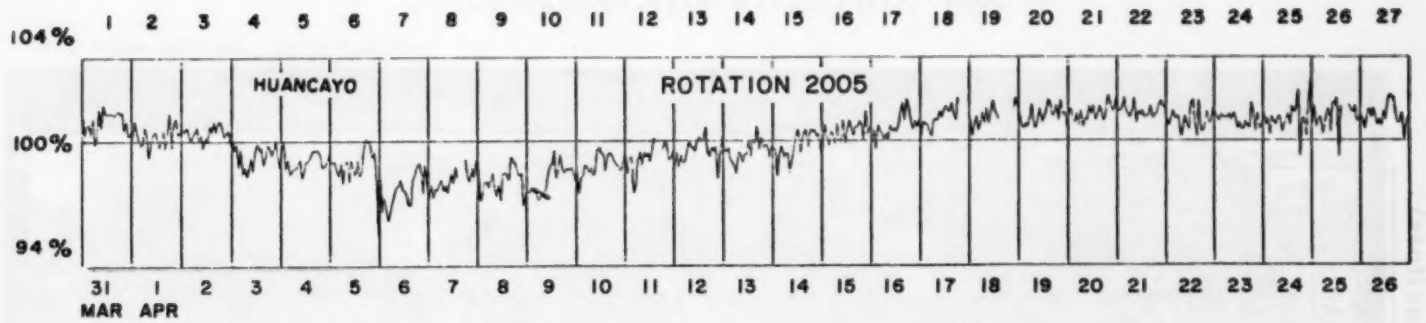


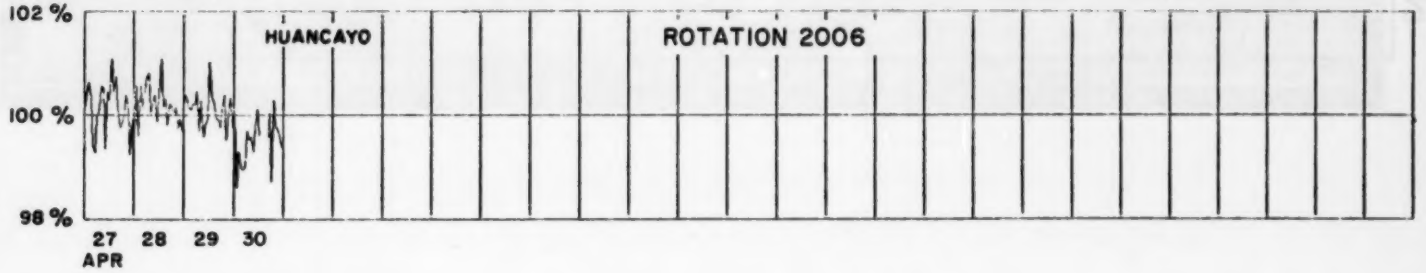
COSMIC RAY INDICES
(Neutron Monitors)

Day	APRIL 1980 HUANCAYO Average (cts/h)/100
1	1731.8
2	1734.0
3	1714.8
4	1710.4
5	1706.5
6	1686.4
7	1693.9
8	1694.2
9	1696.0
10	1707.1
11	1713.2
12	1718.7
13	1718.5
14	1722.9
15	1734.4
16	1739.0
17	1745.9
18	1747.0 (36)
19	1747.2
20	1749.8
21	1751.5
22	1744.3
23	1744.0
24	1745.6
25	1746.9
26	1747.4
27	1739.5
28	1740.7
29	1739.1
30	1728.4
MEAN	1727.8

COSMIC RAY INDICES
(Neutron Monitors)

Bartels Rotation 2005 - 2006 (March - April 1980)

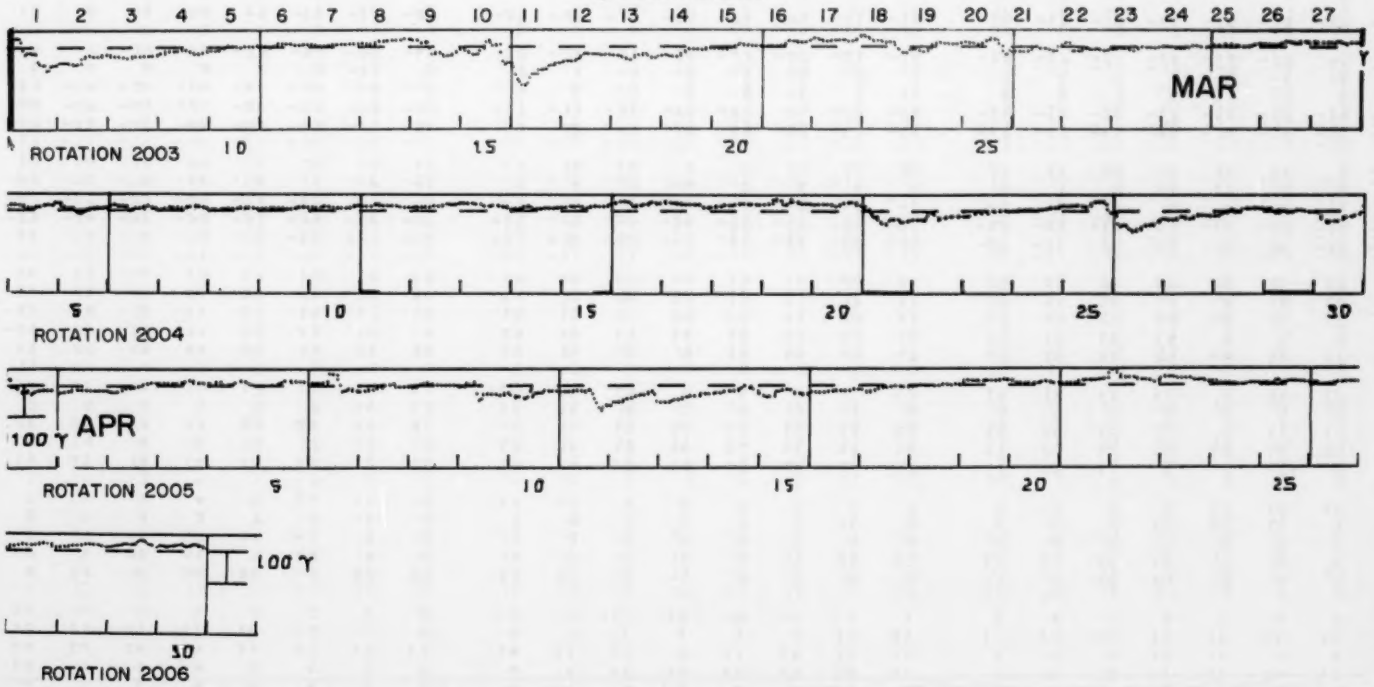




GEOMAGNETIC ACTIVITY INDICES

Hourly Equatorial Dst

by Bartels Rotation



Note: Both the sensitivity indicator placed on the last day of the month and the zero reference level change from month to month.

HOURLY EQUATORIAL Dst VALUES (PROVISIONAL)

NASA/GODDARD SPACE FLIGHT CENTER

MARCH 1980

(Time-UT) (Units-Gammas)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	4	5	6	4	2	4	5	6	8	9	6	3	2	0	-2	-4	-4	-3	-1	2	4	7	9	10
2	10	9	9	9	8	6	3	2	6	8	11	12	16	15	13	11	8	6	8	11	15	16	13	10
3	10	13	14	14	11	11	12	13	14	13	10	9	11	15	16	15	8	4	9	13	11	9	8	11
4	12	15	17	17	16	15	13	9	6	3	1	1	1	6	10	11	11	13	15	15	15	14	12	23
5	22	19	8	5	0	0	2	2	-3	-9	-13	-15	-9	-4	1	1	5	4	6	8	5	6	7	9
6	8	13	15	18	16	9	10	10	11	11	3	-6	2	7	7	5	7	6	11	13	10	6	1	1
7	-4	-2	-2	-1	5	10	9	8	9	8	4	1	6	8	11	11	12	11	14	12	7	5	4	4
8	0	-1	-1	-2	-1	-1	3	4	3	3	6	0	2	5	6	8	9	8	8	9	8	8	6	2
9	0	0	0	3	7	9	6	4	3	6	6	4	3	0	-1	3	4	6	8	10	11	12	9	9
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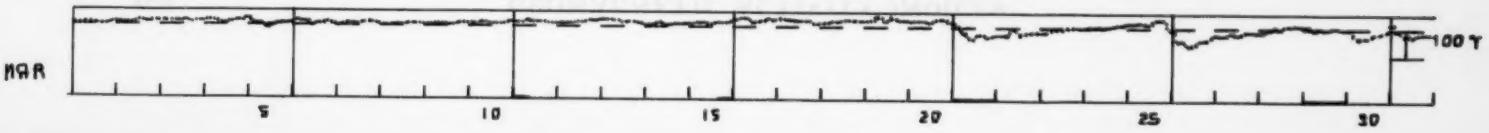

Note: In calculating the Dst index for March the baselines were adjusted for all four observatories. Therefore the reference level for March is not the same as that for February 1980.

HOURLY EQUATORIAL Dst VALUES (PROVISIONAL)

Note: In calculating the Dst index for March the baselines were adjusted for all four observatories. Therefore the reference level for March is not the same as that for February 1980.

HOURLY EQUATORIAL Dst VALUES (PROVISIONAL)

NASA/GODDARD SPACE FLIGHT CENTER

APRIL 1980

(Time-UT) (Units-Gammas)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	-28	-23	-21	-20	-18	-17	-18	-17	-12	-11	-13	-15	-14	-16	-16	-17	-18	-19	-19	-18	-18	-20	-20	-20
2	-20	-22	-24	-25	-24	-20	-18	-14	-11	-9	-8	-8	-7	-6	-5	-3	-1	0	4	6	6	10	9	7
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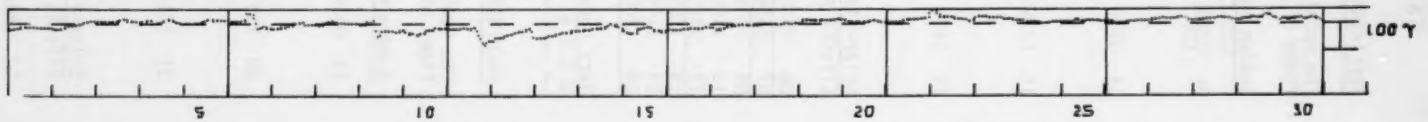

167
Late
Apr 80

SUDDEN COMMENCEMENTS AND SOLAR FLARE EFFECTS

FEBRUARY 1980

PRELIMINARY REPORT ON RAPID MAGNETIC VARIATIONS

The meaning of the station symbols is given in the IAGA-Bulletin nr. 32h, pages 106-116.
Times of ssc are mean values.

Sudden commencements followed by a magnetic storm or a period of storminess (ssc)

06 0320 A: SOD ESK WNG HAD DOU COI TOL FRD MPO KGL DUM;
B: WIT FUR MMB AQU EBR KAK HAZ CZT;
C: NGK KNY

14 0309 A: SOD ESK WNG DOU VIC COI FRD MPO KGL DUM;
B: WIT FUR MMB AQU EBR TOL KAK HAZ CZT;
C: NGK HAD KNY

15 1235 A: COI
B: WNG DOU VIC MMB KAK KGL;
C: WIT NGK AQU EBR TOL HAZ KNY CZT (bp: A: MPO)

25 1429 A: VIC COI;
B: WNG;
C: WIT EBR CZT KGL (si: C: TOL - bps: B: MPO)

Solar-flare effects (sfe)
Effects confirmed by ionospheric or solar observations are underlined.

06 0020 - 0041 HAZ
07 0434 - 0500 MMB HAZ KNY
08 0904 - 0932 EBR TOL (b: A: MPO)
13 1448 - 1453 SOD
19 0826 - 0842 WNG WIT
19 1257 - 1311 SOD
24 1144 - 1210 TOL
28 1205 - 1230 WNG (bps: A: MPO)

Very unusual events
n o n e

MARCH 1980

PRELIMINARY REPORT ON RAPID MAGNETIC VARIATIONS

The meaning of the station symbols is given in the IAGA-Bulletin nr. 32h, pages 106-116.
Times of ssc are mean values.

Sudden commencements followed by a magnetic storm or a period of storminess (ssc)

19 0617 A: NUR DOU VIC FUR COI MPO TWA KGL;
B: SOD ESK WNG WIT HRB AQU EBR TOL KAK CZT DUM;
C: NGK HAZ KNY

30 2354 A: SOD NUR ESK WNG WIT HAD DOU VIC FUR HRB AQU COI TOL FRD TWA DUM;
B: NGK HRB EBR KAK HAZ MPO KGL;
C: MMB KNY CZT

31 1749 A: ESK;
B: WNG WIT HAD VIC;
C: TOL CZT (si: A: FUR HRB TWA; B: MPO)

Solar-flare effects (sfe)
Effects confirmed by ionospheric or solar observations are underlined.

07 1612 - 1647 TOL (ssc: C: VIC)
22 0915 - 0935 EBR
22 1245 - 1258 EBR
25 0427 - 0439 HAZ
31 0046 - 0055 HAZ

SUDDEN COMMENCEMENTS AND SOLAR FLARE EFFECTS

APRIL 1980

PRELIMINARY REPORT ON RAPID MAGNETIC VARIATIONS

The meaning of the station symbols is given in the IAGA-Bulletin nr. 32h,pages 106-116.
Times of ssc are mean values.

Sudden commencements followed by a magnetic storm or a period of storminess (ssc)

06 1059 A: SOD NUR ESK WNG WIT DOU VIC FUR AQU EBR COI TOL FRD ALM MPO CZT KGL;
B: NGK HAD MMB KAK HAZ DUM;
C: KNY

09 0508 A: SOD NUR DOU COI ALM MPO;
B: WNG WIT HAD VIC FUR MMB AQU EBR TOL KAK HAZ KNY CZT KGL DUM;
C: NGK

22 0037 B: WNG WIT DOU FUR AQU EBR TOL MPO KGL;
C: NGK HAD

Solar-flare effects (sfe)
Effects confirmed by ionospheric or solar observations are underlined.

05	0409 - 0448	HAZ
05	1332 - 1352	SOD NGK TOL ALM? (ssc: C: WNG WIT VIC)
06	0406 - 0448	MMB KAK KNY
07	0530 - 0633	MMB KAK KNY
11	0630 - 0704	WNG NGK
15	1508 - 1538	WNG EBR
25	1304 - 1330	NGK ALM (b: A: MPO)
26	0331 - 0410	MMB KAK HAZ KNY
27	0229 - 0243	HAZ

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UAG-30 "Catalogue of Data on Solar-Terrestrial Physics," prepared by NOAA Environmental Data Service, Boulder, CO, October 1973, $1.50. Supersedes UAG-11, 15, and 20 catalogs.

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JULY 1980 NUMBER 431 -- Part II

AUG 26 1980

Solar-Geophysical Data comprehensive reports

Data for January 1980, June 1979 & Miscellanea

Explanation of Data Reports Issued as Number 426 (Supplement) February 1980

Late Data Pages 69-73
June 1979 Solar Flares Pages 34-67

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Solar-Terrestrial Physics Division

CONTENTS

Part I (Prompt Reports)

PAGE

Index for 1979-1980 2

Data for June 1980 3-42

Data for May 1980 43-157

Late Data 159-169
Spacecraft Observations May 1980
Pioneer IX and XII (Solar Wind)
Daily Solar Activity Centers
He 10830 Synoptic Map (Rotation 1693)
Cosmic Rays Huancayo Apr 1980
Geomagnetic Indices
Chart of Dst by Bartels 27-day Rotation
Hourly Equatorial Dst Values Mar, Apr 1980
Sudden Commencements and Solar Flare Effects Feb-Apr 1980

Part II (Comprehensive Reports)

Index for 1979-1980 2

Data for January 1980 3-31
Note on delay of Solar Flare Data 4

Data for June 1979 33-67

Miscellaneous Data
Regional Flare Index May 1979 69-73
Active Regions Oct 6 - Nov 3, 1979
Synoptic Solar Map Oct 6 - Nov 3, 1979

DETAILED COVERAGE FOR 1979-80 PUBLISHED IN "SOLAR-GEOPHYSICAL DATA"

		1979 May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	1980 Jan	Feb	Mar	Apr	May	June
A.	SOLAR AND INTERPLANETARY PHENOMENA														
A.1	Sunspot Drawings	419A 48	420A 50	421A 50	422A 52	423A 50	424A 50	425A 48	426A 50	427A 50	428A 44	429A 42	430A 52	431A 48	
A.2a	Zurich Provisional Relative Sunspot Numbers Rz	418A 11	419A 11	420A 11	421A 11	422A 11	423A 11	424A 11	425A 11	426A 10	427A 9	428A 10	429A 9	430A 11	431A 11
A.2b	Zurich Final Sunspot Numbers Rz	428A 9	428A 9	428A 9	428A 9	428A 9	428A 9	428A 9	428A 9						
A.2c	American Relative Sunspot Numbers RA	418A 11	419A 11	420A 11	421A 11	422A 11	423A 11	424A 11	425A 11	426A 10	427A 9	428A 10	429A 9	430A 11	431A 11
A.3a	Mt. Wilson Magnetograms	419A 48	420A 50	421A 50	422A 52	423A 50	424A 50	425A 48	426A 50	427A 50	427A 44	429A 42	430A 52	431A 48	
A.3b	Mt. Wilson Magnetic Characteristics of Sunspots	419A110	420A110	421A112	422A 11	423A110	424A112	425A108	428A150	427A112	428A102	429A104	430A112	431A110	
A.3c	Kitt Peak Magnetograms	419A 48	420A 50	421A 50	422A 52	423A 50	424A 50	425A 48	426A 50	427A 50	428A 44	429A 42	430A 52	431A 48	
A.3d	Mean Solar Magnetic Field (Stanford)	418A 38	419A 38	420A 40	421A 40	422A 42	423A 40	424A 40	425A 36	426A 38	427A 38	428A 34	429A 35	430A 44	431A 41
A.3e	Stanford Magnetograms	419A 48	420A 50	421A 50	422A 52	423A 50	424A 50	425A 48	426A 50	427A 50	428A 44	429A 42	430A 52	431A 48	
A.4	H-alpha Filtergrams	419A 48	420A 50	421A 50	422A 52	423A 50	424A 50	425A 48	426A 50	427A 50	428A 44	429A 42	430A 52	431A 48	
A.5	Calcium Plage Drawings - Mt. Wilson	419A 48	420A 50	421A 50	422A 52	423A 50	424A 50	425A 48	426A 50	427A 50	428A 44	429A 42	430A 52	431A 48	
A.5a	Calcium Plage (Mt. Wilson) and Sunspot Regions	419A110	420A110	421A112	422A114	423A110	424A112	425A108	428A150	427A112	428A102	429A104	430A112	431A110	
A.5b	Mt. Wilson Daily Calcium Plage Indices	419A123	420A121	421A125	422A129	423A124	424A125	425A121	426A112	427A122	428A112	429A115	430A123	431A121	
A.6	H-alpha Synoptic Charts	419A 43	420A 44	421A 44	422A 46	423A 44	424A 44	425A 40	426A 42	427A 42	428A 38	429A 39	430A 48	431A 44	
A.6b	Synoptic Chart and Active Regions (Paris)	426B 39	426B 40	426B 41	427B 48	429B 38	430B 30								
A.6c	Stanford Solar Magnetic Field Synoptic Charts	419A 44	420A 46	421A 46	422A 48	423A 46	424A 46	425A 42	426A 44	427A 44	428A 40	429A 40	430A 49	431A 45	
A.6d	Kitt Peak Solar Magnetic Field Synoptic Charts	419A 45	420A 48	421A 48	422A 50	423A 48	424A 48	425A 44	426A 46	427A 46	428A 42	429A 41	430A 50		
A.7f	Helium D3 Chromosphere (Big Bear)	418A 34	419A 34	420A 35	421A 37	422A 38	423A 41	425B 28	425A 37	426A 39	427A 39	428A 35	429A 36	430A 41	
A.7g	Helium Synoptic Maps (KPNO)	418A 33	419A 33	420A 34	421A 36	422B 75	425A 46	425A 47	426A 48	427A 48		431A162	430A 51	431A 46	
A.7h	Coronal Line Emission (Sac Peak)	419A 48	420A 50	421A 50	422A 52	423A 50	424A 50	425A 48	426A 50	427A 50	428A 44	429A 42	430A 52	431A 48	
A.8aa	2800 MHz - Daily Values of Solar Flux (ARO-Ottawa)	418A 11	419A 11	420A 11	421A 11	422A 11	423A 11	424A 11	425A 11	426A 10	427A 9	428A 10	429A 9	430A 11	431A 11
A.8ac	2800 MHz - Daily Values of Adj. Solar Flux (ARO-Ottawa)	418A 11	419A 11	420A 11	421A 11	422A 11	423A 11	424A 11	425A 11	426A 10	427A 9	428A 10	429A 9	430A 11	431A 11
A.8g	Daily Values of Adjusted Solar Flux (AFGL)	418A 11	419A 11	420A 11	422B 84	422A 11	423A 11	424A 11	425A 11	426A 10	427A 9	428A 10	429A 9	430A 11	431A 11
A.9cb	6.6 cm Radio Maps of the Sun (NOSC - La Posta)	419A 48	420A 50	421A 50	422A 52	423A 50	424A 50	425A 48	426A 50	427A 50	428A 44	429A 42	430A 52	431A 48	
A.9d	2 cm Radio Maps of the Sun (NOSC - La Posta)	419A 48	420A 50	421A 50	422A 52	423A 50	424A 50	425A 48	426A 50	427A 50	428A 44	429A 42	430A 52	431A 48	
A.10a	169 MHz - Interferometric Observations (Nancay)	419B 52	420B 69	420A 24	422B 85	422A 25	423A 27	424A 25	426A148	426A 23	427A 23	428A 20	429A 22	430A 26	
A.10c	21 cm East-West Solar Scans (Fleurs)	418A 25	420B 70	420A 27	421A 28	422A 28	423A 30	424A 28	425A 27	426A 26	427A 26	428A150	429A 25	430A 29	431A 28
A.10d	43 cm East-West Solar Scans (Fleurs)	418A 26	420B 71	420A 28	421A 29	422A 29	423A 31	424A 29	425A 28	426A 27	427A 27	429A151	429A 26	430A 30	431A 29
A.10e	10.7 cm East-West Solar Scans (Ottawa-ARO)	418A 24	419A 26	420A 26	421A 27	422A 27	423A 29	424A 27	425A 26	426A 25	427A 25	428A 22	430A175	430A 28	431A 27
A.10f	3 cm East-West Solar Scans (Toyokawa)	418A 23	419A 25	420A 25	421A 26	422A 26	423A 28	424A 26	425A 25	426A 24	427A 24	428A 21	429A 23	430A 27	431A 26
A.11k	Solar X-ray Radiation (SOLRAD 11)	419A126	420A124	421A129	422A133	423A128	426A158	---	---	---	---	---	---	---	
A.11g	Solar X-ray (SMS/GOES) (graphs)	423B 17	424B 29	425B 20	426B 24	427B 28	428B 24	429B 26	430B 16	431B 27					
A.12ba	Cosmic Ray Protons (Pioneers 6 & 7)	---	---	---	---	---	---	---	---	---	---	---	---	---	---
A.12bb	Cosmic Ray Protons (Pioneers 8 & 9)	---	---	---	---	---	---	---	---	---	---	---	---	---	---
A.13a	Solar Wind (Pioneers 6 & 7)	424B 40	427B 37	426B 33	427B 42	430B 24	429B 32			426A 32	427A 33	428A 28	429A 32	431A160	431A 30
A.13ab	Solar Wind (Pioneers 8 & 9)	---	---	---	---	---	---	---	---	---	427A 32	428A 27	429A 32	---	431A 30
A.13d	Solar Wind from IPS Measurements	---	---	---	---	424B 39	---	---	---	426A 32	427A 33	428A 28	429A 32	431A160	431A 30
A.13e	Solar Plasma (IMP H & J)	418A 35	419A 35	420A 37	422B 89	422A 39	424A 36	424A 37	426A146	426A 34	427A 35	429A 30	430A164	430A 37	431A 36
A.13f	Solar Wind (Pioneer 12 (Venus))	423B 17	424B 28	425B 19	426B 23	427B 27	428B 23	429B 25	430B 15						
A.17	Interplanetary Magnetic Field (Pioneer 8)	418A 32	419A 32	420A 36	421A 35	422A 37	423A 37	424A 36	425A 32	426A 33	427A 34	428A 29	429A 33	431A161	431A 39
A.17	Interplanetary Magnetic Field (Pioneer 9)	---	---	---	---	---	---	---	---	---	---	---	---	---	---
A.17	Interplanetary Magnetic Field (Pioneer 12)	---	---	---	---	424B 39	---	---	---	426A 32	427A 33	428A 28	429A 32	431A160	431A 30
A.17c	Inferred IP Magnetic Field	418A 36	419A 36	420A 38	421A 38	423B 73	424B 38	425B 29	425A116	---	---	429A119	430A127	431A125	
A.18	Interplanetary Electric Field (Pioneer 8)	---	---	---	---	422A 40	423A 38	424A 38	425A 34	426A 36	427A 36	428A 32	430A 42	431A 42	
A.18	Interplanetary Electric Field (Pioneer 9)	---	---	---	---	---	---	---	---	---	---	---	---	---	---
B.	IONOSPHERIC (AND RADIO WAVE PROPAGATION) PHENOMENA	---	---	---	---	424B 39	---	---	---	426A 32	427A 33	428A 28	429A 32	431A160	431A 30
B.52	Graphs of Transmission Frequency Range	419A168	420A166	421A166	422A170	423A174	424A154	425A152	426A142	427A154	428A140	429A146	430A160	431A156	
B.53	Quality Figures Based on Frequency Ranges	419A167	420A168	421A165	422A180	423A173	424A153	425A151	426A141	427A153	428A139	429A148	430A159	431A155	
C.	FLARE-ASSOCIATED EVENTS														
C.1a	Optical Observations Flares	418A 14	419A 14	420A 14	421A 14	422A 14	423A 15	424A 15	425A 15	426A 15	427A 14	428A 15	429A 14	430A 16	431A 16
C.1ba	Optical Observations Flares (Standardized Data)	430B 68	431B 34												
C.1d	Flare Patrol Observations	418A 23	419A 24	420A 23	421A 25	422B 72	423A 26	424A 24	425A 24	427A158	427A 22	---	---	430A 46	431A 25
C.1d	Flare Patrol Observations (Culgoora)	430B108	431B 67												
C.1e	Flare Indices (by day)	430B107	431B 66												
C.1f	Flare Indices (by Region)	431B 70													
C.3	Solar Radio Waves - Outstanding Occurrences	423B 4	424B 4	425B 5	426B 5	427B 5	428B 5	429B 5	430B 5	431B 5					
	Solar Radio Waves - Fixed Frequencies - Selected	418A 28	419A 27	420A 29	421A 30	422A 30	423A 32	424A 30	425A 29	426A 28	427A 28	428A 23	429A 27	430A 31	431A 30
C.3t	43.25, 60 and 160 MHz Selected Bursts (Culgoora)	420B 75	420A129	423B 76	423B 76	423A143	426A149	426A153	426A117	427A126	428A116	429A120	430A128	431A126	
C.4a	Solar Radio Spectral Obs. (Fort Davis)	419A142	420A139	421A145	422A149	423A143	424A130	425A125	426A117	427A126	428A116	429A120	430A128	431A126	
C.4d	Solar Radio Spectral Obs. (Culgoora)	419A142	420A139	422B 86	422A149	423A143	424A130	425A125	426A117	427A126	428A116	429A120	430A128	431A126	
C.4e	Solar Radio Spectral Obs. (Weissenau)	419A142	420A139	421A145	---	---	---	---	---	---	---	429A120	430A128	431A126	
C.4f	Solar Radio Spectral Obs. (Sagamore Hill)	419A142	420A139	421A145	---	---	---	---	---	---	---	429A120	430A128	431A126	
C.4h	Solar Radio Spectral Obs. (Owingeloo)	419A142	---	421A145	422A149	423A143	424A130	425A125	426A117	427A126	428A116	429A120	430A128	431A126	
C.4i	Solar Radio Spectral Obs. (Bleien)	419A142	---	---	422A149	423A143	424A130	425A125	426A117	427A126	428A116	429A120	430A128	431A126	
C.4j	Solar Radio Spectral Obs. (Manila)	419A142	420A139	421A145	422A149	---	424A130	425A125	426A117	427A126	---				
C.4k	Solar Radio Spectral Obs. (Learmonth)				422A149	423A143		425A125		427A126	428A116	429A120	430A128	431A126	
C.4l	Solar Radio Spectral Obs. (Palehua)				422A149	423A143		425A125		427A126	428A116	429A120	430A128	431A126	
C.5a	Solar X-ray (SMS/GOES) (graphs)	423B 17	424B 29	425B 20	426B 24	427B 28	428B 24	429B 26	430B 16	431B 27					
C.6	Sudden Ionospheric Disturbances	419A124	420A122	421A126	422A130	423A125	424A126	425A122	426A113	427A123	428A113	429A116	430A124	431A122	
D.	GEOMAGNETIC AND MAGNETOSPHERIC PHENOMENA														
D.1a	Geomagnetic Indices Kp, Kn, Ks, Km, Ap, as, Cp	419A160	420A160	421A159	422A170	423A166	424A147	425A144	426A133	427A148	429A154	429A142	430A155	431A151	
D.1ba	27-day Chart of Kp Indices	419A162	420A162	421A161	422A172	423A168	424A149	425A146	426A135	427A150	428A137	429A144	430A157	431A153	
D.1c	27-day Chart of C9	426A136	426A136	426A136	426A136	426A136	426A136	426A136	426A136						
D.1ca	as graph 1868 - present	426A137	426A137	426A137	426A137	426A137	426A137	426A137	426A137						
D.1d	Principal Magnetic Storms	419A165	420A165	421A164	422A175	423A171	424A152	425A149	426A140	427A151	428A138	429A145	430A158	431A154	
D.1e	Reduced Magnetograms														
D.1f	Sudden Commencement and Solar Flare Effects	419A166	421B 42	422B 90	422A177	423A172	425B 33	425A150	427A164	427A152	431A168	431A168	431A169		
D.1g	Equatorial Indices Dst	419A164	420A164	421A163	422A174	423A170	424A151	425A148	426A139	428A147	429A155	431A166	431A167		
D.1h	Geomagnetic Substorm Log (Boulder)	418A 39	419A 39	420A 41	421A 41	422A 43	423A 42	424A 41	425A 38	426A 40	427A 40	428A 36	429A 37	430A 45	431A 42
F.	COSMIC RAYS														
F.1a	Cosmic Ray Neutron Counts (Deep River)	419A153	420A155	421A158	422A165	423A161	425B 32	427A159	427A159	428A146	429A153	429A137	430A154		
F.1b	Cosmic Ray Neutron Counts (Climax)	419A153	420A155	421A158	422A165	423A161	425B 32	425A143	426A132	428A146	428A134	430A167	430A154	431A150	
F.1e	Cosmic Ray Neutron Counts (Alert)	420B 78	420A155	421A158	422A165	423A161	425B 32	427A159	427A159	428A146	429A153	429A137	430A154		
F.1f	Cosmic Ray Neutron Counts (Calgary)														
F.1h	Cosmic Ray Neutron Counts (Thule)	419A153	420A155	421A158	422A165	423A161	424A146	425A143	426A132	427A147	428A134	429A137	430A154	431A150	
F.1i	Cosmic Ray Neutron Counts (Kiel)	419A153	420A155	421A158	422A165	423A161	427A159	425A143	426A132	427A147	428A134	429A137	430A154	431A150	
F.1j	Cosmic Ray Neutron Counts (Tokyo)	419A153	420A155	421A158	422A165	423A161	427A159	425A143	426A132	427A147	428A134	429A137	430A154	431A150	
F.1k	Cosmic Ray Neutron Counts (Kula)									427A147	---	---	---	---	
F.11	Cosmic Ray Neutron Counts (Huancayo)	420B 79	420A155	421A158	423B 81	425B 32	425A 32	426A177	427A159	428A146	430A167	430A167	431A163		
H.	MISCELLANEOUS														
H.60	IUWDS Alert Decisions	418A 5	419A 5	420A 5	421A 5	422A 4	423A 4	424A 4	425A 4	426A 4	427A 4	428A 4	429A 4	430A 5	431A 5
H.62	Abbreviated Calendar Record														

Notes:

"419A 48" listed under 1979 MAY means that the sunspot drawings for MAY 1979 were contained in *Solar-Geophysical Data* 304

A = Part I, B = Part II.

----- = no data available.
Blank = data not yet received.

SGD 431 Part II (Comprehensive)

JANUARY 1980

Contents

Page

Active Regions (Data not available at time of publication.)

Synoptic Solar Maps (Data not available at time of publications.) SEE NOTE ON PAGE 4.

Solar Flares (Data not available at time of publication.)
Hα Solar Flares (Standardized Data)
Daily Flare Indices
Intervals of No Flare Patrol Observation

Solar Radio Emission
Outstanding Occurrences (Fixed Frequencies) 5-26

Energetic Solar Particles and Plasma
IMP 8 Solar Wind Plasma (Data not available at time of publication.)
IMP 8 Electrons, Protons and Alpha Particles (Data not available at time of publication.)

Solar X-ray Radiation
SMS-GOES 27-31

NOTE ON DELAY OF GROUPED SOLAR FLARE DATA:

Beginning with this issue, we will publish the final listing of solar flare data 13 months from date of observation, rather than the usual 6 months, in a separate section of Part II. We plan to continue this 13-month delay until Solar Cycle 21 passes well through its maximum. The Daily Flare Index and the Regional Flare Index will go to 13- and 14-month delays, respectively, while the Abbreviated Calendar Record will be suspended indefinitely. We deeply regret this situation, but the volume of data recorded during sunspot maximum and computer conversion problems at the Meudon Observatory and at NGSDC have forced this new schedule on us.

For researchers who need the comprehensive solar flare data more promptly, NGSDC has available "preliminary" listings from April through October 1979. These complete tabulations lack the final Meudon corrections, and thus will not be published until we receive them. Nevertheless, printouts for the April-October 1979 period are available on request with the stipulation that they be recognized as "preliminary" when used in research projects. A fee may be charged for reproducing these data if a large demand ensues. Please contact the editor, Helen Coffey, for copies of these listings [Phone: (303) 497-6223; Telex: SOLTERWARN BLDR 45897].

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

JANUARY 1980

DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	POLARIZATION OR REMARKS
				UT	UT	MINUTES	PEAK	MEAN		
01	3750	TYKW	21 GRF	0418.0	0440	60.0	4	2		
	2000	TYKW	5 S	0418.0	0419.8	5.0	3	.5		
	3750	TYKW	5 S	0418.0	0419.6	8.0	2.5	1		
	2000	TYKW	20 GRF	0430.0	0445	30.0	2	1		
	3750	TYKW	45 C	0446.5	0449.7	10.0	4	1.5		
	7000	SAOP	1 S	1453.0	1453.6		10.0			32L
	2800	OTTA	23 GRF	1715.0	1807	130.0	20.0	7.0		
	7000	SAOP	45 C	1734.0	1806.6	38.0	40.0			8R
	9400	HUAN	S	1746.9	1810.4	100.3	26.6	13.2		R
	2800	OTTA	4 S/F	1747.0	1748	2.0	11.4	3.8		
	2695	PENT	20 GRF	2053.0	2054	17.0	3.2	1.6		
02	2000	TYKW	45 C	0126.0	0128.4	5.0	55	15		
	3750	TYKW	45 C	0126.0	0128.0	5.0	38	10		
	1000	TYKW	45 C	0126.0	0129.0	5.0	110	10		
	1400	SYDN	27 RF	0126.9	0129.2	3.6				
	9400	TYKW	20 GRF	0127.0	0129	85.0	8	2.5		
	17000	NOBE	20 GRF	0127.2	0129.0	12.0	4			0
	700	SYDN	40 F	0127.7	0129.0	2.4				
	2000	TYKW	29 PBI	0131.0		80.0	4	2		
	3750	TYKW	29 PBI	0131.0		80.0	7	3		
	2000	TYKW	21 GRF	0310.0	0410	165.0	4	2		
	3750	TYKW	21 GRF	0310.0	0410	160.0	6	3		
	9400	TYKW	21 GRF	0310.0	0410	160.0	6	3		
	2000	TYKW	5 S	0311.0	0314	8.0	2.5	1		
	1000	TYKW	45 C	0326.0	0328.0	5.0	9	1.5		
	3750	TYKW	45 C	0327.0	0328.9	5.0	13	4		
	2000	TYKW	45 C	0327.0	0329.2	5.0	11	4		
	9400	TYKW	5 S	0327.0	0329	5.0	5	1.5		
	3750	TYKW	5 S	0338.0	0341	15.0	3	1		
	2000	TYKW	45 C	0339.0	0341.1	4.0	4	1		
	3750	TYKW	5 S	0525.0	0525.5	7.0	2	.5		
	2000	TYKW	5 S	0548.0	0548.8	5.0	1.5	.5		
	9400	TYKW	5 S	0600.0	0600.5	1.0	16	3		
	100	GORK	46 C	0738.7	0739.8U	4.0	40 D			
	100	GORK		0738.7	0740.7U		50 D			
	100	GORK		0738.7	0741.6U		50 D			
	200	GORK	4 S/F	0739.3	0740.8	34.0	40 D			
	650	GORK	40 F	0739.6	0739.7	26.0	44			
	650	GORK		0739.6	0741.6		11			
	127	TORN	45 C	0739.6	0742.9	3.4	50	12		
	260	ONDR	3 S	0942.4	0942.4	.2	13			
	430	KRAK	1 S	1042.0	1042.5	1.5	10	4		
	810	KRAK	1 S	1042.3	1042.5	.5	5			
	2650	DWIN	41 F	1128.0	1129	2.0	30	10		
	127	TORN	7 C	1240.6	1241	1.0	130	50		
	260	ONDR	45 C	1240.7	1244.2	4.0	11	1		
	430	KRAK	8 S	1336.2	1336.3	.3	35			
	810	KRAK	1 S	1340.5	1340.8	.3	8			
	930	BORD	46 C	1426.0	1426.4	.7	179	4		
	930	BORD	41 F	1443.0	1443.1	.3	29	2		
	930	BORD	41 F	1449.5	1449.9	1.0	143	6		
	930	BORD	41 F	1456.6	1456.6	.5	149	3		
	9400	HUAN	S	1902.0	1916.6	31.9	5.0	4.2		3
	2800	OTTA	1 S	1947.0	1948	5.0	3.0	1.2		
03	3750	TYKW	5 S	0225.0	0226	2.0	2	1		
	3750	TYKW	5 S	0358.0	0359.6	25.0	3	1		
	2000	TYKW	5 S	0358.0	0359.6	20.0	1.5	.5		
	204	IZMI	41 F	1027.5	1028.1	2.5	235			
	127	TORN	40 F	1028.8	1031.6	18.5	40			
	930	BORD	41 F	1155.8	1156.2	.5	32	2		
	127	TORN	42 SER	1155.9	1156.9	11.0	64			
	430	KRAK	42 SER	1156.0	1206.5	11.0	36			
	260	ONDR	42 SER	1156.0	1206.2	11.0	37			
	930	BORD	8 S	1327.6	1327.6	.1	50	1		
	113	POTS	4 S/F	1352.3	1352.4	8.0	200	5		III
	2800	OTTA	23 GRF	1445.0	1715	245.0	10.6	5.3		
	2800	OTTA	3 S	1655.5	1656	2.0	12.0	5.0		
	9400	HUAN	S	1700.2	1715.6	33.4	6.1	2.2		3
	2800	OTTA	20 GRF	1955.0	2030	45.0	2.2	1.4		
04	100	GORK	44 NS	0621.0E		100.0D		5		
	200	GORK	43 NS	0633.0		297.0		5		
	127	TORN	43 NS	0736.0	1020.8	424.0D	25			V0
	260	ONDR	44 NS	0820.0E		336.0D	62	5		
	3750	TYKW	5 S	0115.0	0121.7	20.0	2.5	.7		
	3750	TYKW	5 S	0232.0	0234.5	10.0	3	1		
	2000	TYKW	5 S	0232.0	0234.6	20.0	1.5	.5		
	3750	TYKW	21 GRF	0320.0	0420	160.0	7	3		
	2000	TYKW	21 GRF	0320.0	0420	200.0	7	3		
	9400	TYKW	21 GRF	0330.0U	0410 U	150.0U	12 U	6 U		RAIN
	5730	IRKU	1 S	0522.5	0523.3	3.0	6			L
	9400	TYKW	5 S	0522.8	0523.3	5.0	100	25		

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

JANUARY 1980

DAY OF MONTH	FREQUENCY	STATION	TYPE		STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	POLARIZATION OR REMARKS
					UT	UT	MINUTES	PEAK	MEAN		
04	17000	NOBE	3	S	0522.9	0523.3	4.4	60			L
	2000	TYKW	5	S	0529.5	0530.5	3.5	3	1		
	3750	TYKW	5	S	0530.0	0531	4.0	3	1		
	3100	CRIM	21	GRF	0752.0	1006.0	270.0D	16	5		
	234	POTS	4	S/F	0917.1	0917.2	.3	340	10		
	430	KRAK	42	SER	0936.0		51.0	25			
	536	ONDR	42	SER	0950.5	0957.2	27.0	13			
	930	BORD	8	S	1013.0	1013	.1	30	1		
	3100	CRIM	1	S	1139.0	1140.0	2.0	6	2		
	7000	SAOP	45	C	1242.0	1254.8	111.4	27.0			BR
	9500	POTS	2	S/F	1252.5	1254.9	3.5	7.6			
	1470	POTS	4	S/F	1252.5	1254.9	5.5	27			
	930	BORD	41	F	1252.9	1253.3	2.6	19	2		
	9400	HUAN		S	1253.0	1255.0	3.2	9.7	5.7		0
	2650	DWIN	2	S/F	1253.0	1255	4.0	30	15		
	3000	POTS	4	S/F	1253.0	1254.9	5.0	25			
	430	KRAK	4	S/F	1327.0	1327.0	1.0	54	18		
	536	ONDR	42	SER	1327.0	1331.4	5.0	9			
	2800	OTTA	21	GRF	1505.0	1528	140.0	6.0	3.8		
	7000	SAOP	20	GRF	1507.2	1540.5	44.0	16.0			0
	2800	OTTA	3	S	1517.0	1520	5.5	10.4	4.0		
	9400	HUAN		S	1518.0	1541.4	38.3	4.0	3.4		R
	2800	OTTA	1	S	1753.0	1754	2.0	2.2	1.0		
	2800	OTTA	8	S	1911.0	1911.0	.1	5.6			
05	100	HIRA	43	NS	0315.0	0418	110.0	60	20		
	127	TORN	44	NS	0810.0E	1321.5	390.0D	11	3		V0
	260	ONDR	44	NS	0820.0E		330.0D	130	3		
	3750	TYKW	5	S	0425.0	0425.9	2.0	1.5	.5		
	2000	TYKW	21	GRF	0504.0	0530	90.0	5	3		
	3750	TYKW	20	GRF	0504.0	0522	80.0	4	2		
	9400	TYKW	20	GRF	0505.0	0522	70.0	7	3		
	6100	KISV	4	S/F	0626.0	0627	2.0	6			
	234	POTS	3	S	0646.9	0647.2	.6	300	100		III
	3100	CRIM	20	GRF	0924.0	1114.0	141.0D	10	6		
	127	TORN	7	C	0953.7	0954.4	1.0	110	10		
	113	POTS	4	S/F	0953.9	0954.0	1.1	150	15		III
	3000	POTS	20	GRF	1020.0	1126.0	6.0D	11			
	1470	POTS	20	GRF	1020.0	1111.3	150.0	6.0			
	9500	POTS	20	GRF	1031.0	1110	129.0	17			
	204	IZMI	41	F	1127.5	1129.5	3.0	100			
	234	POTS	4	S/F	1129.5	1129.6	.6	250	8		III
	113	POTS	4	S/F	1129.6	1129.6	.0	150	5		III
	930	BORD	41	F	1253.7	1254.4	.0	39	2		
	2800	OTTA	23	GRF	1435.0	1532	130.0	9.6	4.8		
	9400	HUAN		S	1521.2	1534.0	46.0	7.0	4.6		0
	7000	SAOP	20	GRF	1530.0			8.0			0
	2800	OTTA	8	S	1543.9	1544	.0	4.0	2.0		
	2800	OTTA	240	R	1652.0	1727	35.0	5.2	2.6		
	2800	OTTA	1	S	1756.0	1756.6	1.0	2.2	1.1		
	2800	OTTA	21	GRF	1835.0	1845	45.0	3.4	1.7		
	2800	OTTA	4	S/F	1839.2	1840.5	4.0	11.0	4.0		
	9400	HUAN		S	1840.2	1915.7	43.6	6.3	4.5		0
	7000	SAOP	40	F	1909.0						
	2800	OTTA	20	GRF	1935.0		55.0	3.4			
06	100	HIRA	44	NS	0027.0E	0619	420.0D	150	30		
	200	GORK	44	NS	0618.0E		312.0D		10		
	100	GORK	43	NS	0634.0		295.0E		10		
	127	TORN	44	NS	0650.0E	1006.9	480.0D	390	60		V1
	204	IZMI	43	NS	0700.0		300.0	75			
	260	ONDR	44	NS	0820.0E		343.0D	81	15		
	100	HIRA	44	NS	2148.0E	2237	580.0D	450	120		
	200	HIRA	44	NS	2148.0E	0505	580.0D	20	10		ML
	100	HIRA	46	C	0156.0	0156.7	1.2	3000	1100		
	3750	TYKW	5	S	0227.5	0228.1	2.0	2	.7		
	2000	TYKW	5	S	0227.5	0228.4	2.0	1.5	.5		
	100	HIRA	46	C	0419.2	0420.9	2.8	800	260		
	3750	TYKW	45	C	0426.0	0512	60.0	5	2		
	100	GORK			0621.0E	0630.5		30			
	100	GORK	46	C	0621.0E	0628.5	13.0D	75			
	930	BORD	45	C	0829.6	0835	22.4	2981	900		
	3100	CRIM	21	GRF	0832.0	1000.0	193.0D	20	7		
	6100	KISV	4	S/F	0857.0	0903.7	31.0	16			
	9100	GORK	21	GRF	0900.0	1011.2	120.0	15	7.5		
	930	BORD	41	F	0900.0	0903.5	3.0	207	2		
	200	GORK	4	S/F	0902.0E	0903.4U	18.0D	40	D		
	2650	DWIN	1	S	0903.0	0903	1.0	40	30		
	650	GORK			0903.3	0904.3		75			
	650	GORK	40	F	0903.3	0903.5	13.0	3			
	950	GORK	4	S/F	0903.4	0903.6	11.0	59			
	2950	GORK	4	S/F	0903.4	0903.6	27.0	38			
	3000	POTS	8	S	0903.4	0903.6	.6	35			
	1470	POTS	8	S	0903.4	0903.6	.6	32			
	6100	KISV	24	R	0930.0	0930		4			

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

JANUARY 1980

DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	POLARIZATION OR REMARKS
				UT	UT	MINUTES	PEAK	MEAN		
06	113	POTS	42 SER	1000.0	1006.8	15.0	550	10		III
	2950	GORK	20 GRF	1006.0	1009.1	22.0	11	5		
	6100	KISV	45 C	1006.0	1009.5	4.0	10			
	6100	KISV		1006.0	1011		9			
	950	GORK	2 S/F	1006.4	1009.5	6.0	55			
	810	KRAK	42 SER	1006.5	1009.5	6.0	40	14		
	930	BORD	42 SER	1006.5	1008.4	5.0	131	5		
	810	KRAK		1006.5	1010.2		36			
	650	GORK	2 S/F	1006.6	1011.0	59.0	20			
	33	UPIC	46 C	1006.7	1009	7.8				
	29	UPIC	46 C	1006.7	1007	4.7				
	536	ONDR	42 SER	1006.8	1007.3	5.0	52			
	200	GORK	46 C	1007.0E	1011.1	15.0D	100 D			
	200	GORK		1007.0E	1012.4		400			
	100	GORK		1008.0E	1012.3		3000			
	100	GORK		1008.0E	1011.3		5300			
	100	GORK	46 C	1008.0E	1009.0	65.0D	1000			
	3100	CRIM	1 S	1008.5	1009.0	5.0	10	3		
	9100	GORK	1 S	1008.9	1009.1	18.0	68	34		
	430	KRAK	8 S	1009.0	1009.0	.2	510 D			
	430	KRAK	8 S	1011.5	1012.0	.8	40			
	3100	CRIM	1 S	1018.5	1019.0	3.0	7	2		
	29	UPIC	41 F	1041.2	1046.6	5.9				
	33	UPIC	41 F	1041.9	1046.8	5.1				
	113	POTS	8 S	1227.9E	1228.0	.2D	3000			III
	234	POTS	4 S/F	1254.0	1254.0	.2	240	30		
	7000	SAOP	40 F	1345.0		93.0				
	234	POTS	4 S/F	1354.5	1354.8	.3	260	25		
	9400	HUAN	S	1400.1	1411.0	17.9	7.2	5.2		0
	2800	OTTA	20 GRF	1420.0	1450	115.0	5.6	2.8		
	2800	OTTA	240 R	1645.0	1700	15.0	3.0	1.5		
	2800	OTTA	20 GRF	1725.0	1735	20.0	2.2	1.1		
	2800	OTTA	20 GRF	1815.0	1837	55.0	4.8	2.6		
	9400	HUAN	S	1821.0	1840.6	37.1	8.6	6.7		0
	9400	HUAN	S	2114.3	2115.1	3.8	10.0	5.2		R
	9400	HUAN	C	2123.8	2126.8	12.5	196.7	78.2		1
	9400	HUAN	PBI	2136.3	2136.3	28.4	17.2	7.6		1
07	200	GORK	44 NS	0622.0E		278.0D		5		
	100	GORK	44 NS	0625.0E		235.0D		10		
	127	TORN	43 NS	0700.0	1134.9	460.0D	100	20		V1
	260	ONDR	44 NS	0850.0E		312.0D	179	10		
	9400	TYKW	5 S	0019.0	0019.4	1.0	5	2		
	3750	TYKW		0150.0	0234		10			
	9400	TYKW	5 S	0150.0	0152.5	25.0	11	3		
	3750	TYKW	45 C	0150.0	0246.0	75.0	14	3.5		
	2000	TYKW		0220.0	0246.0		8			
	2000	TYKW	45 C	0220.0	0231.2	70.0	10	2.5		
	9400	TYKW	5 S	0221.5	0221.7	1.5	4	1		
	100	HIRA	42 SER	0224.7	0229.2	11.0	870			
	1000	TYKW	45 C	0228.5	0231.2	9.0	8	1.5		
	1000	TYKW	45 C	0244.0	0246.0		16	1.5		
	9400	TYKW	5 S	0244.0	0246.2	15.0	7	2.5		
	9400	TYKW	5 S	0258.3	0258.5	.5	11	3		
	3750	TYKW	5 S	0310.0	0323	30.0	2	.5		
	3750	TYKW	45 C	0605.8	0606.2	5.0	15	1.5		
	100	GORK	4 S/F	0642.7	0643.3	18.0	340			
	650	GORK	3 S	0654.1	0654.3	4.0	12	6		
	3750	TYKW	5 S	0656.0	0657.5	6.0	10	2		
	9400	TYKW	5 S	0656.0	0657.3	6.0	23	4		
	6100	KISV	4 S/F	0656.0	0657.5	14.0	13 D			
	9100	GORK	23 GRF	0656.7	0736.4	82.0	10	5		
	2950	GORK	3 S	0656.9	0657.5	22.0	135			
	1000	TYKW	45 C	0657.0	0657.1	1.0	65	7		
	2000	TYKW	45 C	0657.0	0657.2	1.0	12	3		
	950	GORK	2 S/F	0657.0	0657.4	13.0	27			
	15000	KISV	4 S/F	0657.0	0657.5	3.0	3			
	9100	GORK	1 S	0657.1	0657.5	9.0	23	12		
	6100	KISV	4 S/F	0733.0	0735.5	12.0	11			
	2950	GORK	1 S	0735.6	0736.0	12.0	4.5	2		
	950	GORK	2 S/F	0811.3	0811.7	6.0	15			
	650	GORK	1 S	0811.4	0811.7	5.0	55			
	6100	KISV	4 S/F	0823.0	0825.5	22.0	10			
	9100	GORK	20 GRF	0824.9	0825.4	15.0	8	4		
	9100	GORK	20 GRF	0856.0	1012.3	81.0	19	9		
	3100	CRIM	20 GRF	0913.0	0936.0	197.0D	13	4		
	2950	GORK	20 GRF	0916.4	1012.3	91.0	13			
	950	GORK	2 S/F	1010.0	1010.3	13.0	66			
	650	GORK	3 S	1010.0	1010.1	4.0	27	8		
	930	BORD	8 S	1010.7	1010.7	.2	39	2		
	2950	GORK	1 S	1055.4	1058.2	45.0	65	3		
	7000	SAOP	20 GRF	1057.0	1100.3		11.0			0
	6100	KISV	4 S/F	1058.0	1100.5	5.0	7			
	930	BORD	8 S	1102.3	1102.3	.1	71	1		
	950	GORK	4 S/F	1114.6	1115.0	6.0	31			

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

JANUARY 1980

DAY OF MONTH	FREQUENCY	STATION	TYPE		STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	POLARIZATION OR REMARKS
					UT	UT	MINUTES	PEAK	MEAN		
07	950	GORK	4	S/F	1110.0	1119.6	1.0	29			
	7000	SAOP	46	C	1121.0	1313.8	80.0	147.0			9R
	930	BORD	41	F	1151.6	1151.8	.4	15	2		
	930	BORD	46	C	1309.0	1313.8	6.5	39	5		
	9500	POTS	4	S/F	1310.0	1313.8	7.5	127			
	9400	HUAN		C	1310.1	1313.8	10.4	147.7	51.4		R
	10400	BERN	4		1310.3	1313.8	9.0	140.0			ONLY PAPER REC
	10715	DWIN	2	S/F	1311.0	1313	6.0	50	30		
	2650	DWIN	1	S	1311.0	1313	4.0	25	15		
	3000	POTS	4	S/F	1311.2	1313.7	4.8	22			
	1470	POTS	4	S/F	1311.4	1313.1	4.6	63			
	810	KRAK	4	S/F	1312.0	1313.5	3.5	235	21		
	930	BORD	8	S	1552.8	1552.8	.1	36	1		
	2800	OTTA	20	GRF	1735.0	1756	28.0	4.4	2.2		
	2800	OTTA	21	GRF	1805.0	1823	30.0	5.2	2.6		
	9400	HUAN		S	1816.5	1817.3	1.7	14.6	11.6		0
	9400	HUAN		S	1820.6	1826.3	20.4	20.1	9.5		0
	2800	OTTA	1	S	1825.5	1826	2.0	5.4	2.7		
	2800	OTTA	21	GRF	1856.0	2000	100.0	3.2	1.7		
	2800	OTTA	4	S/F	1857.0	1901.5	8.0	22.0	7.4		
	2800	OTTA	29	PBI	1905.0	1905	20.0	6.6	4.9		
	9400	HUAN		S	1941.2	2015.0	71.5	10.9	7.0		0
08	127	TORN	43	NS	0812.0	0851.2	236.0	16	9		V0
	100	GORK	43	NS	0817.0		30.0		5		
	100	GORK	43	NS	1030.0		90.0E		5		
	3750	TYKW	21	GRF	0354.0	0433	135.0	13	6		
	2000	TYKW	45	C	0358.0	0359.9	14.0	12	2.5		
	3750	TYKW	45	C	0358.0	0359.9	14.0	5	1		
	2000	TYKW	21	GRF	0358.0	0434	125.0	9	4		
	9400	TYKW	21	GRF	0358.0	0433	120.0	11	5		
	9400	TYKW	5	S	0358.0	0400	14.0	5	2		
	1000	TYKW	45	C	0358.0	0359.9	6.0	8	1.5		
	700	SYDN	8	S	0411.9	0412.1	.6				
	3750	TYKW	5	S	0412.0	0413.0	2.0	85	25		
	9400	TYKW	5	S	0412.0	0413.0	2.0	105	30		
	2000	TYKW			0412.0	0413.0		11			
	2000	TYKW	45	C	0412.0	0413.5	2.0	13	4.5		
	4995	MANI	3	S	0412.4	0413.5	2.2	123.1	41.0		
	17000	NOBE	7	C	0412.5	0413.0	1.4	111			R
	2695	MANI	3	S	0412.7	0413.4	1.5	27.6	9.2		
	8800	MANI	3	S	0412.8	0413.5	2.5	128.4	42.8		
	17000	NOBE	29	PBI	0413.8	0413.8	26.0	9			0
	9400	TYKW	29	PBI	0414.0		15.0	7	3		
	2000	TYKW	29	PBI	0414.0		15.0	1.5	.5		
	3750	TYKW	29	PBI	0414.0		15.0	5	2		
	3750	TYKW	5	S	0441.0	0446	15.0	3	1		
	2000	TYKW	5	S	0442.0	0445	20.0	3	1		
	9400	TYKW	5	S	0442.0	0446	8.0	2	1		
	100	GORK			0656.5	0709.5		80 D			
	100	GORK	41	F	0656.5	0659.6	153.0	80 D			
	100	GORK			0656.5	0705.6		80			
	200	GORK	4	S/F	0718.0	0718.6	10.0	25			
	6100	KISV	1	S	0750.5	0751	1.0	3			
	430	KRAK	42	SER	0759.0		122.0	39			
	6100	KISV	24	R	0802.0	0807	36.0	6			
	3100	CRIM	28	RPE	0827.0	0917.0	99.0	14	5		
	9100	GORK	21	GRF	0828.1	1027.4	212.0E	55			
	260	ONDR	41	F	0834.0	0840	10.0	9	4		
	2950	GORK	21	GRF	0836.6	1055.0	174.0	30			
	6100	KISV	27	RF	0838.0	0844	21.0	9			
	650	GORK	40	F	0847.5		215.0	6			
	200	GORK	3	S	0847.6	0847.7	3.0	25 D	10		
	100	GORK	4	S/F	0848.0	0849.7	34.0	40			
	10400	BERN	1		0858.8	0900.4	9.0	9.0			ONLY PAPER REC
	15000	KISV	4	S/F	0859.5	0900.7	4.0	8			
	6100	KISV	4	S/F	0859.5	0900.5	4.0	8			
	9100	GORK	1	S	0859.6	0859.9	24.0	9	45		
	10400	BERN	47		1002.6	1009.7	40.0	680.0			ONLY PAPER REC
	15000	KISV			1005.0	1010.0		700			
	15000	KISV			1005.0	1024.0		45			
	15000	KISV			1005.0	1050		15			
	15000	KISV	47	GB	1005.0	1008.2	55.0	900			
	9500	POTS	29	PBI	1005.0	1009.9	140.0	684			
	15000	KISV			1005.0	1008.7		880			
	15000	KISV			1005.0	1007.7		830			
	15000	KISV			1005.0	1032.7		26			
	15000	KISV			1005.0	1030		40			
	15000	KISV			1005.0	1010.8		650			
	6100	KISV			1005.5	1010		380			
	6100	KISV			1005.5	1024.2		55			
	6100	KISV			1005.5	1030		60			
	6100	KISV			1005.5	1051		24			
	6100	KISV	47	GB	1005.5	1011	85.0	620			
	9100	GORK			1005.7	1009.8		770			

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

JANUARY 1980

DAY OF MONTH	FREQUENCY	STATION	TYPE		STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	POLARIZATION OR REMARKS
					UT	UT	MINUTES	PEAK	MEAN		
08	9100	GORK			1005.7	1010.6		690			
	9100	GORK	46	C	1005.7	1008.6	12.0	650			
	2950	GORK			1005.8	1030.0		80			
	2950	GORK	46	C	1005.8	1008.3	30.0	170			
	2950	GORK			1005.8	1010.6		190			
	2950	GORK			1005.8	1024.0		74			
	2950	GORK			1005.8	1014.2		120			
	2650	DWIN	45	C	1006.0	1011	50.0	180	80		
	3000	POTS	46	C	1006.0	1010.5	86.0	194			
	1470	POTS	46	C	1006.0	1023.3	82.0	411			
	10715	DWIN	45	C	1006.0	1008	35.0	250	150		
	3100	CRIM			1006.0	1051.0		48			
	3100	CRIM	45	C	1006.0	1011.0	49.0	140	46		
	3100	CRIM			1006.0	1024.0		72			
	3100	CRIM			1006.0	1030.0		42			
	950	GORK	46	C	1007.0	1051.0		112			
	950	GORK			1007.0	1023.0		297			
	950	GORK	46	C	1007.0	1013.6	50.0	117			
	950	GORK			1007.0	1031.6		182			
	430	KRAK	48	C	1007.0	1010.8	39.0	366	33		
	430	KRAK			1007.0	1023.0		174			
	930	BORD	45	C	1007.0	1023	67.0	459	90		
	650	GORK			1007.6	1050.5		73			
	650	GORK			1007.6	1030.4		80			
	650	GORK	46	C	1007.6	1010.9	684.0	168			
	650	GORK			1007.6	1104.8U		190	D		
	650	GORK			1007.6	1023.8		76			
	810	KRAK			1008.0	1011.0		159			
	810	KRAK	46	C	1008.0	1009.0	13.5	182	50		
	810	KRAK			1008.0	1014.0		167			
	536	ONDR	48	C	1008.5	1010.6	51.0	202	42		
	260	ONDR	48	C	1009.3		51.0	219	D 45		
	200	GORK			1009.7	1017.5		7000			
	200	GORK	46	C	1009.7	1014.5	82.0	14500			
	204	IZMI	48	C	1010.5	1014.0	29.5	2670	1500		
	234	POTS	49	GB	1011.0	1014.5	49.0	1900	120		II+III+IV
	113	POTS	49	GB	1011.0	1013.3	49.0	5000	70		II+III+IV
	127	TORN	42	SER	1011.4	1014	D 10.5	380	D 200		SATURATED
	100	GORK			1012.6	1017.6		13000			
	100	GORK	46	C	1012.6	1013.5	11.0	1700	D		
	127	TORN	27	RF	1021.1	1024.5	28.0	48	33		
	810	KRAK	45	C	1021.5	1023.0	22.5	246	76		
	810	KRAK			1021.5	1031.5		136			
	9100	GORK	2	S/F	1028.5	1030.0	58.0	30			
	810	KRAK	4	S/F	1044.0	1050.7	17.0	123	36		
	430	KRAK	4	S/F	1046.0	1049.5	11.5	68	21		
	29	UPIC	4	S/F	1049.2	1051.5	5.9				
	33	UPIC	45	C	1049.9	1051.4	6.1				
	3100	CRIM	29	PBI	1055.0	1055.0	95.0	22			
	7000	SAOP	20	GRF	1112.7	1125.0	28.0	17.0			0
	650	GORK	1	S	1120.6	1125.1	4.0	5	25		
	930	BORD	8	S	1143.5	1143.5	.1	139	1		
	113	POTS	41	F	1149.4	1149.6	1.4	150	1	E	III
	930	BORD	8	S	1232.1	1232.2	.2	14	1		
	7000	SAOP	20	GRF	1425.0		40.6	16.0			0
	2800	OTTA	23	GRF	1515.0	1533	250.0	12.4	8.0		
	930	BORD	41	F	1515.6	1515.7	.2	18	2		
	7000	SAOP	3	S	1528.0	1531.5	11.0	34.0			9L
	9400	HUAN		S	1530.6	1531.5	1.8	19.6	11.7		0
	2800	OTTA	1	S	1531.0	1531.4	1.0	7.6	3.8		
	930	BORD	8	S	1604.7	1604.7	.1	19	1		
	930	BORD	8	S	1605.4	1605.4	.1	21	1		
	7000	SAOP	20	GRF	1701.0		38.0	17.0			0
	9400	HUAN		S	1708.3	1726.4	32.7	10.7	8.1		0
	2800	OTTA	21	GRF	2020.0	2040	50.0	14.4	7.0		
	9400	HUAN		S	2021.2	2032.4	36.4	17.8	10.2		R
	2800	OTTA	4	S/F	2025.0	2028.3	10.0	142.0	35.6		
	9400	HUAN		C	2026.7	2028.1	3.1	48.2	20.3		R
	9400	HUAN		C	2155.1	2156.0	3.5	94.6	45.2		R
	9400	TYKW	28	PRE	2355.0	2355.7	32.0	18	4		
09	127	TORN	43	NS	1133.0	1138.9	86.0	50	.5U		V1
	3750	TYKW	45	C	0020.0	0032.3	18.0	190	35		
	2000	TYKW	47	GB	0025.0	0032.3	13.0	650	50		
	9400	TYKW	45	C	0027.0	0032.8	11.0	430	100		
	1415	MANI	4	S/F	0027.4	0032.4	10.2	289.9	96.6		
	4995	MANI	4	S/F	0027.6	0032.9	12.7	195.2	65.1		
	35000	NAGO	5	S	0028.0	0033	4.0	92			
	8800	MANI	47	GB	0028.8	0032.9	9.6	500.8	166.9		
	17000	NOBE	28	PRE	0028.9	0030.4	1.4	33			0
	2695	MANI	4	S/F	0029.2	0033.3U	9.0	135.2	43.1		
	1000	TYKW	45	C	0030.0	0032.2	18.0	77	15		
	1400	SYDN	45	C	0030.1	0032.2	15.3				
	17000	NOBE	46	C	0030.4	0032.8	5.3	329			R
	700	SYDN	27	RF	0030.8	0033.3	10.9				

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

JANUARY 1980

DAY OF MONTH	FREQUENCY	STATION	TYPE		STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	POLARIZATION OR REMARKS
					UT	UT	MINUTES	PEAK	MEAN		
09	606	MANI	4	S/P	0031.0	0033.3	6.4	30.5	10.1		
	580	HIRA	46	C	0031.0	0033.1	9.0	30	16		WR
	200	HIRA	46	C	0033.6	0034.0	20.0	115	17		0
	200	HIRA			0033.6	0036.6		150			0
	35000	NAGO	29	PBI	0034.0	0034	20.0	45			
	17000	NOBE	29	PBI	0035.7	0035.7	26.0	58			R
	100	HIRA	42	SER	0035.9	0037.0	10.0	600			
	3750	TYKW	30	PBI	0038.0		170.0	14	4		
	2000	TYKW	29	PBI	0038.0		170.0	8	1.5		
	9400	TYKW	30	PBI	0038.0		80.0	40	10		
	9400	TYKW	5	S	0127.0	0127.3	2.0	6	2		
	9400	TYKW	20	GRF	0250.0	0257	40.0	4	2		
	9400	TYKW	28	PRE	0333.0	0335	4.0	3	1.5		
	3750	TYKW	45	C	0333.0	0357.8	50.0	9	2		
	9400	TYKW	5	S	0337.0	0337.6	3.0	45	13		
	17000	NOBE	3	S	0337.2	0337.5	1.9	48			R
	9400	TYKW	29	PBI	0340.0		60.0	4	1.5		
	2000	TYKW	5	S	0356.0	0400	14.0	2	1		
	3750	TYKW	20	GRF	0430.0	0440	40.0	2	1		
	2000	TYKW	20	GRF	0430.0	0440	40.0	1	.5		
	2000	TYKW	45	C	0540.0	0547.2	90.0	7	2		
	9400	TYKW	21	GRF	0540.0	0547	100.0D	6	4 D		
	3750	TYKW	45	C	0540.0	0547.2	90.0	8	5.5		
	1000	TYKW	45	C	0543.0	0545.2	5.0	6	2		
	9400	TYKW	5	S	0642.0	0643.2	3.0	6	3		
	9400	TYKW	29	PBI	0645.0		35.0	4	2		
	3100	CRIM	24	R	0805.0	1007.5		30			
	430	KRAK	42	SER	0845.0		30.0	33			
	430	KRAK	40	F	0956.0		145.0	33	6		
	204	IZMI	8	C	0959.5	0959.5	.4	700	450		
	2650	DWIN	1	S	1002.0	1002	1.0	60	50		
	2650	DWIN	8	S	1028.0			80			
	260	ONDR	41	F	1040.0	1138.6	121.0	26	2		
	113	POTS	41	F	1053.2	1053.2	1.8	700	1		III
	6100	KISV	32	ABS	1055.0	1117	22.0	-8			
	930	BORD	8	S	1056.0	1056	.1	51	1		
	6100	KISV			1117.0	1138.5		10			
	6100	KISV			1117.0	1150		9			
	6100	KISV			1117.0	1136		11			
	6100	KISV			1117.0	1121.5		9			
	6100	KISV			1117.0	1119		7			
	6100	KISV	46	C	1117.0	1130		14			
	10400	BERN	3		1129.7	1129.8	.6	12.0			ONLY PAPER REC
	8400	BERN	3		1129.7	1129.8	.6	15.0			ONLY PAPER REC
	15000	KISV	8	S	1129.7	1129.8	1.0	13			
	930	BORD	8	S	1135.0	1135	.1	23	1		
	430	KRAK	42	SER	1225.0		60.0	30			
	9400	HUAN		S	1341.7	1342.3	1.2	17.7	12.5		R
	9400	HUAN		S	1343.5	1344.0	1.3	12.9	8.7		R
	2800	OTTA	240	R	1420.0	1500	40.0	6.6	3.3		
	2800	OTTA	21	GRF	1505.0		220.0	6.2	3.6		
	2800	OTTA	28	GRF	1729.0	1733	15.0	3.2	1.6		
	2695	PENT	240	R	2020.0	2040	20.0	4.0	2.0		
	2800	OTTA	20	GRF	2045.0	2057	50.0	5.0	2.4		
	3750	TYKW	5	S	2330.0	2330.3	1.0	3	1		
10	100	GORK	43	NS	0636.5		291.0E		10		
	127	TORN	43	NS	0700.0U	0848	460.0D	41	2.5		V0
	200	GORK	43	NS	0701.0		191.0		5		
	260	ONDR	44	NS	0823.0E		332.0D	24	2		
	200	HIRA	44	NS	2150.0E	0635	580.0D	40	10		MR
	9400	TYKW	21	GRF	0131.0	0218.7	115.0	17	4		
	2000	TYKW	20	GRF	0133.0	0146	60.0	5	1.5		
	3750	TYKW	21	GRF	0133.0	0231	105.0	9	5		
	100	HIRA	42	SER	0342.0	0345.8	5.7	710			
	200	HIRA	46	C	0342.5	0345.6	5.3	1000	150		0
	3750	TYKW	45	C	0345.0	0346.3	2.0	57	6		
	2000	TYKW	45	C	0345.0	0345.9	2.0	6	2		
	1000	TYKW	45	C	0345.0	0345.9	2.0	5	2		
	500	HIRA	46	C	0345.0	0345.3	2.0	47	15		WR
	5730	IRKU	1	S	0440.0	0449.0	4.0	10			
	9400	TYKW	28	PRE	0442.0	0449	15.0	5	3		
	3750	TYKW	28	PRE	0447.0	0449	10.0	6	3		
	5730	IRKU	45	C	0456.3	0459.0	15.0	19			L
	5730	IRKU			0456.3	0504.7		150			L
	5730	IRKU			0456.3	0508.9		292			L
	5730	IRKU			0456.3	0507.2		303			L
	3750	TYKW			0457.0	0519.1		355			
	2000	TYKW	47	GB	0457.0	0529.7	120.0	2050	160		
	2000	TYKW			0457.0	0528.9		920			
	9400	TYKW			0457.0	0519.1		115			
	2000	TYKW			0457.0	0525.2		420			
	9400	TYKW			0457.0	0531.3		180			
	3750	TYKW	45	C	0457.0	0531.1	90.0	445	110		
	2000	TYKW			0457.0	0556.2		260			

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

JANUARY 1980

DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	POLARIZATION OR REMARKS
10	3750	TYKW		0457.0	0509.1		415			
	2800	TYKW		0457.0	0507.2		200			
	9400	TYKW	45 C	0457.0	0507.2	90.0	375	90		
	17000	NOBE	28 PRE	0457.1	0502.0	5.3	24			0
	2695	MANI	47 GB	0457.5	0529.2	82.5	3328.0	1030.0		
	4995	MANI	47 GB	0457.5	0508.1	75.5	524.2	174.7		
	700	SYDN		0500.0	0559 D					
	700	SYDN	48 C	0500.0	0511.0	68.2D				
	700	SYDN		0500.0	0601 D					
	700	SYDN		0500.0	0517 D					
	700	SYDN		0500.0	0512 D					
	700	SYDN		0500.0	0555 D					
	1415	MANI	47 GB	0501.2	0529.7	78.1	1125.0	357.1		
	500	HIRA	48 C	0501.4	0532.4	114.0	2700	500		WL,SR
	1400	SYDN		0501.6	0516 D					
	1400	SYDN		0501.6	0504.7U					
	1400	SYDN	48 C	0501.6	0513 D	66.3D				
	1400	SYDN		0501.6	0555 D					
	8800	MANI	47 GB	0501.8	0508.0	70.2	526.7	175.6		III
	1000	TYKW	47 GB	0502.0	0530.3	120.0	2450	400		
	1000	TYKW		0502.0	0556.6		1290			
	1000	TYKW		0502.0	0514.8		870			
	1000	TYKW		0502.0	0539.2		770			
	1000	TYKW		0502.0	0509.3		455			
	1000	TYKW		0502.0	0519.3		1950			
	1000	TYKW		0502.0	0526.2		1740			
	606	MANI	47 GB	0502.3	0532.3	114.2	2125.0	672.0		
	17000	NOBE	45 C	0502.4	0507.2	25.0	149			0
	200	HIRA	48 C	0503.0	0512.6	150.0D	1700	170		WR,SUNSET
	200	HIRA		0503.0	0644.0		550			SR
	200	HIRA		0503.0	0556.0		440			WL
	200	HIRA		0503.0	0531.0		800			WR
	200	HIRA		0503.0	0625.8		940			MR
	35000	NAGO	7 C	0504.0	0509	86.0D	38			
	100	HIRA	48 C	0508.4	0513.2	140.0D	40000 D	570 U		SUNSET
	100	HIRA		0508.4	0530.0		4000			
	5730	IRKU	29 PBI	0511.0		16.0	134			L
	17000	NOBE	45 C	0527.7		74.0	34 D			R
	5730	IRKU	20 GRF	0527.8	0531.8	24.0	171			L
	3100	CRIM	47 GB	0553.0U	0558.5	31.0	125	40		
	100	GORK	46 C	0625.0E	0629.1	116.0D	180			
	100	GORK	46 C	0625.0E	0634.0		320			
	3750	TYKW	29 PBI	0627.0		20.0	9	4		
	9400	TYKW	29 PBI	0627.0		50.0D	23	15 D		
	200	GORK		0634.0E	0643.8		1600			
	200	GORK	46 C	0634.0E	0639.6	27.0D	400 D			
	204	IZMI	48 C	0649.0U	0653.0	13.0	775	300		
	127	TORN	27 RF	0740.5	0820.7	59.0	60	33		
	113	POTS	8 S	0759.8	0759.8	.2	800	250		III
	234	POTS	8 S	0759.8	0759.8	.1	150	50		III
	113	POTS	8 S	0848.2	0848.3	.2	175	60		III
	6100	KISV	20 GRF	0850.0	0857	15.0	6			
	6100	KISV	27 RF	0937.0	0949	33.0	4			
	536	ONDR	42 SER	1006.7	1006.7	4.0	12			
	127	TORN	8 S	1010.9	1011.4	1.0	150	74		
	113	POTS	4 S/F	1011.2	1011.3	.4	200	30		III
	29	UPIC	8 S	1011.4	1011.6	.6				
	33	UPIC	8 S	1011.4	1011.6	1.0				
	536	ONDR	45 C	1221.3	1222.7	3.0	12	1.8		
	7000	SAOP	20 GRF	1300.0		217.0	29.0			0,TWO BURSTS
	536	ONDR	2 S/F	1313.0	1314.3	3.0	11	1		
	2800	OTTA	240 R	1430.0	1540	70.0	9.2	4.8		
	9400	HUAN	S	1552.8	1607.0	56.5	14.4	4.3		R
	2800	OTTA	24 R	1614.0	1625	11.0	4.0	2.0		
	2800	OTTA	27 RF	1614.0		106.0	4.0	3.6		
	9400	HUAN	S	1616.7	1617.4	2.0	12.8	7.8		R
	2800	OTTA	24P R	1625.0		85.0	4.0			
	2800	OTTA	26 FAL	1750.0	1800	10.0	-4.0	-2.0		
	2800	OTTA	21 GRF	1825.0	1920	225.0	24.4	14.4		
	7000	SAOP	20 GRF	1835.0		70.0	30.0			0
	2800	OTTA	40 F	1835.5	1838.2	11.0	6.6			
	9400	HUAN	S	1844.0	1924.0	129.2	22.4	14.5		0
	9400	HUAN	S	1903.4	1903.8	1.4	12.8	7.7		0
	2800	OTTA	2 S/F	2043.0	2044	2.0	2.0	.9		
	9400	HUAN	S	2150.2	2150.8	1.4	60.8	23.5		1
	2695	PENT	3 S	2206.0	2206.8	4.0	15.0	4.0		
	9400	TYKW	5 S	2335.0	2335.4	1.0	25	8		
	3750	TYKW	5 S	2335.0	2335.4	2.0	10	3		
	9400	TYKW	29 PBI	2336.0		15.0	4	2		
11	100	HIRA	43 NS	0415.0	0440	210.0D	55	24		
	200	GORK	44 NS	0625.0E		335.0D		10		
	100	GORK	44 NS	0633.0E		90.0D		10		
	127	TORN	44 NS	0650.0E	1350.8	480.0D	79			V1
	260	ONDR	44 NS	0810.0E		345.0D	67	3		

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

JANUARY 1980

DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	POLARIZATION OR REMARKS
				UT	UT	MINUTES	PEAK	MEAN		
11	9400	TYKW	21 GRF	0010.0	0019.5	110.0	12	4		
	2000	TYKW	20 GRF	0010.0	0027	110.0	5	2.5		
	3750	TYKW	21 GRF	0015.0	0027	105.0	8	3		
	200	GORK	4 S/F	0630.9	0634.3	34.0	400 D			
	650	GORK	1 S	0638.1	0638.2	3.0	14	7		
	950	GORK	4 S/F	0638.1	0638.1	9.0	43			
	234	POTS	4 S/F	0802.8	0803.2	.8	720	80		III
	204	IZMI	7 C	0803.0	0803.5	1.0	825	500		
	113	POTS	42 SER	0803.1	0803.2	9.6	200	3		III
	3100	CRIM	21 GRF	0833.0	0922.0		7	2		
	2950	GORK	21 GRF	0906.0	0911.2	41.0	4			
	430	KRAK	4 S/F	0914.0	0916.0	3.0	201	81		
	810	KRAK	4 S/F	0914.3	0916.2	2.5	55	20		
	536	ONDR	4 S/F	0914.5	0915.7	2.5	36	5		
	930	BORD	46 C	0914.5	0916.1	2.5	67	7		
	3100	CRIM	1 S	0914.5	0915.5	3.0	9	3		
	1470	POTS	4 S/F	0914.6	0916.2	2.4	96			
	950	GORK	4 S/F	0914.7	0916.7	27.0	42			
	650	GORK	4 S/F	0914.7	0916.1	26.0	27	8		
	2950	GORK	1 S	0915.0	0915.4	24.0	13	6		
	260	ONDR	4 S/F	0915.0	0916.3	2.5	142	27		
	6100	KISV	8 S	0915.0	0916	3.0	10			
	2650	DWIN	41 F	0915.0	0915	2.0	30	20		
	9100	GORK	21 GRF	0915.1	0916.7	26.0	65	3		
	808	ONDR	2 S/F	0915.2	0916.5	2.5	15	3		
	234	POTS	4 S/F	0915.3	0916.1	2.2	750	6		III
	15000	KISV	1 S	0915.5	0916	2.0	4			
	9100	GORK	1 S	0916.2	0916.4	9.0	16	8		
	6100	KISV	1 S	0924.5	0924.7	1.0	2			
	6100	KISV	4 S/F	1000.0	1003.5	18.0	17			
	2950	GORK	21 GRF	1000.4	1004.7	98.0	45	2		
	1470	POTS	20 GRF	1002.5	1010.4	23.0	3.8			
	9500	POTS	29 PBI	1002.5	1003.6	25.0	11			
	9100	GORK	2 S/F	1002.9	1004.0	14.0	17	8		
	3100	CRIM	1 S	1003.0	1003.5	1.0	7	2		
	650	GORK	3 S	1003.6	1003.8	6.0	50	17		
	950	GORK	5 S	1003.7	1004.0	5.0	37			
	2950	GORK	1 S	1003.8	1004.0	7.0	12	6		
	9100	GORK	29 PBI	1004.3	1004.4	13.0	10			
	9100	GORK	1 S	1024.3	1024.4	8.0	6	3		
	930	BORD	8 S	1101.4	1101.4	.1	49	1		
	6100	KISV	28 PRE	1108.0	1125	27.0	3			
	6100	KISV	4 S/F	1137.0	1147		24			
	7000	SAOP	45 C	1140.4	1145.2	18.0	30.0			0,TWO BURSTS
	3100	CRIM	3 S	1143.0	1145.0	17.0	15	5		
	9500	POTS	20 GRF	1144.0	1145.3	19.0	15			
	3000	POTS	20 GRF	1145.0	1145.5	13.0	11			
	33	UPIC	8 S	1250.9	1251	.5				
	29	UPIC	8 S	1250.9	1251	.5				
	113	POTS	8 S	1251.0	1251.0	.1	700	250		III
	7000	SAOP	4 S/F	1258.0	1300.1	4.0	21.0			0
	7000	SAOP	46 C	1347.0	1356.5	10.0	148.0			3R
	9500	POTS	29 PBI	1356.0	1356.6	9.0D	351			
	9500	POTS	3 S	1356.2	1356.7	1.0	214			
	9500	POTS	29 PBI	1356.3	1356.5	8.7D	426			
	2800	OTTA	3 S	1356.4	1356.6	1.0	19.6	9.8		
	930	BORD	46 C	1546.0	1549.4	5.0	49	5		
	2800	OTTA	20 GRF	1622.0	1700	60.0	3.6			
	7000	SAOP	40 F	1622.0		128.0				
	2800	OTTA	20 GRF	1736.0	1743	60.0	3.6	1.8		
	2800	OTTA	3 S	1850.0	1852.2	10.0	63.0	19.8		
	7000	SAOP	3 S	1851.0	1852.3	9.4	35.0			0
	9400	HUAN	S	1851.1	1852.5	3.7	17.1	10.2		0
	9400	HUAN	PBI	1854.8	1854.8	43.4	7.1	4.3		0
	2800	OTTA	29 PBI	1900.0	1920	20.0	4.4	1.8		
	2695	PENT	20 GRF	1930.0	2005	90.0	3.6			
	9400	HUAN	S	2026.0	2027.3	1.5	11.4	6.9		0
	2695	PENT	21 GRF	2114.0	2120	25.0	4.2	2.6		
	9400	HUAN	S	2114.5	2115.2	1.6	75.5	28.5		R
	2800	OTTA	3 S	2114.5	2115.3	2.0	16.0	8.4		
	9400	HUAN	PBI	2116.1	2116.1	22.6	14.2	7.5		0
	1000	TYKW	45 C	2348.3	2348.6	.6	60	15		
	1000	TYKW	5 S	2357.3	2357.8	1.0	8	2		
12	200	GORK	43 NS	0627.0		273.0E		5		
	127	TORN	44 NS	0710.0E	0850.6	440.0D	55	.5		V1
	100	GORK	44 NS	0810.0E		170.0D		10		
	260	ONDR	44 NS	0810.0E		375.0D	44	3		
	3750	TYKW	20 GRF	0020.0	0035	40.0	5	2		
	9400	TYKW	20 GRF	0020.0	0035	40.0	7	2		
	1000	TYKW	5 S	0034.0	0035.0	1.5	22	4		
	3750	TYKW	20 GRF	0120.0	0153	80.0	3	1		
	9400	TYKW	21 GRF	0120.0	0150	80.0	3	1.5		
	9400	TYKW	5 S	0221.0	0221.3	1.5	3	1		
	9400	TYKW	5 S	0254.0	0255.0	2.0	4	1.5		

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

JANUARY 1980

DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	POLARIZATION OR REMARKS
				UT	UT	MINUTES	PEAK	MEAN		
12	3750	TYKW	45 C	0308.0	0315.4	15.0	25	8		
	5730	IRKU	2 S	0308.5	0315.4	9.5	29			L
	1000	TYKW	45 C	0310:0	0313.2	8.0	5	2		
	2000	TYKW	45 C	0312.0	0315	10.0	3.5	1.5		
	9400	TYKW	5 S	0312.0	0315.4	10.0	35	13		
	17000	NOBE	20 GRF	0312.3	0315.5	23.4	21			0
	5730	IRKU	29 PBI	0318.0		9.0	11			L
	9400	TYKW	30 PBI	0322.0		33.0	6	4		
	3750	TYKW	30 PBI	0323.0		32.0	4	4		
	5730	IRKU		0354.5	0357.0		24 D			L
	5730	IRKU	45 C	0354.5	0355.5	4.0	10			L
	1000	TYKW	45 C	0355.0	0355.4	1.0	9	3		
	2000	TYKW	45 C	0355.0	0355.6	4.0	2	.5		
	3750	TYKW	45 C	0355.0	0357.0	7.0	25	9		
	9400	TYKW	45 C	0355.0	0357.0	5.0	38	13		
	4995	MANI	3 S	0355.3	0357.4	4.2	48.5	16.2		
	17000	NOBE	20 GRF	0355.4	0356.8	12.0	8			0
	5730	IRKU	29 PBI	0359.5		11.0	5			L
	9400	TYKW	30 PBI	0400.0		100.0	8	3		
	3750	TYKW	29 PBI	0402.0		100.0	8	4		
	9400	TYKW	5 S	0415.5	0416.3	1.5	3	1		
	3750	TYKW	5 S	0619.0	0620.9	6.0	5	1.5		
	9400	TYKW	5 S	0619.0	0620.4	3.0	4.5	1.5		
	9100	GORK	21 GRF	0642.8	0805.7	206.0	16	8		
	6100	KISV	8 S	0654.0	0654.5	1.0	5			
	9100	GORK	1 S	0655.0	0655.2	7.0	75	35		
	6100	KISV	29 PBI	0655.0		8.0	2			
	2950	GORK	21 GRF	0657.0U						
	6100	KISV	4 S/F	0703.0	0711.5	14.0	6			
	6100	KISV	27 RF	0717.0	0736	29.0	4			
	6100	KISV	8 S	0746.0	0747	3.0	10			
	3100	CRIM	1 S	0746.0	0747.0	3.0	19	6		
	2950	GORK	1 S	0746.9	0747.5	21.0	15	7		
	9100	GORK	2 S/F	0747.0	0747.5	3.0	9	45		
	650	GORK	1 S	0748.4	0748.7	13.0	3			
	2950	GORK	1 S	0821.7	0822.5	21.0	35	15		
	930	BORD	41 F	0835.8	0836.5	1.0	26	3		
	950	GORK	2 S/F	0836.4	0836.8	11.0	36			
	650	GORK	3 S	0836.6	0837.1	2.0	20			
	650	GORK	3 S	0842.1	0842.4	1.0	21			
	113	POTS	4 S/F	0921.7	0921.8	.7	150	3		III
	430	KRAK		0943.5	0953.7		69			
	430	KRAK	45 C	0943.5	0949.7	16.2	61	31		
	650	GORK	20 GRF	0945.0	0954.8	15.0	13	4		
	536	ONDR	3 S	0947.0	0954	11.0	52			
	33	UPIC	2 S/F	0948.0	0948.5	1.4				
	6100	KISV	8 S	1000.5	1001.5	2.0	10			
	15000	KISV	8 S	1001.0	1001.5	1.0	6			
	9100	GORK	1 S	1001.9	1002.2	8.0	9	45		
	6100	KISV	29 PBI	1002.0		3.0	3			
	6100	KISV	32 ABS	1005.0	1025	49.0	-4			
	536	ONDR	1 S	1028.3	1028.3	.3	15			
	430	KRAK	2 S/F	1028.5	1028.5	.5	21			
	650	GORK	3 S	1028.8	1029.1	5.0	30	9		
	29	UPIC	1 S	1051.8	1052	.5				
	29	UPIC	1 S	1051.8	1052	.4				
	6100	KISV	46 C	1054.0	1055.5	16.0	10			
	9400	HUAN	S	1118.3	1200.3	61.0	19.0	10.2		1
	6100	KISV		1120.0	1145		17			
	6100	KISV		1120.0	1155		30			
	6100	KISV	46 C	1120.0	1122		47			
	9500	POTS	29 PBI	1121.2	1122.0	13.0	19			
	9400	HUAN	S	1121.4	1122.0	1.8	17.2	14.0		R
	3000	POTS	29 PBI	1121.5	1122.0	5.0	20			
	1470	POTS	40 F	1121.5	1122.4	4.0	3.7			
	10400	BERN	20	1121.6	1122.1	10.0	10.0			ONLY PAPER REC
	15000	KISV	3 S	1121.7	1121.8	2.0	8			
	810	KRAK	4 S/F	1121.7	1122.3	.5	65			
	536	ONDR	1 S	1124.3	1124.3	.3	21			
	7000	SAOP	3 S	1125.0	1127.3	4.4	52.0			9R
	430	KRAK	46 C	1152.5	1155.3	7.0	155	20		
	536	ONDR	45 C	1152.5	1154.5	5.0	24	2		
	3000	POTS	20 GRF	1153.0	1154.5	5.0	8			
	9500	POTS	4 S/F	1154.0	1157.0	8.5	53			
	10715	DWIN	1 S	1154.0	1157	5.0	20	10		
	10400	BERN	4	1154.1	1157.1	24.0	38.0			ONLY PAPER REC
	1470	POTS	42 SER	1154.6	1156.5	3.4	8.3			
	9400	HUAN	S	1154.8	1157.2	3.8	55.2	27.0		1
	7000	SAOP	46 C	1158.7	1202.2	6.4	58.0			6L
	536	ONDR	8 S	1251.8	1251.8	.3	28			
	430	KRAK	8 S	1253.3	1253.3	.1	26			
	930	BORD	8 S	1312.4	1312.4	.1	17	1		
	2650	DWIN	1 S	1340.0	1341	5.0	20	10		
	2800	OTTA	4 S/F	1340.0	1341.5	8.0	23.4	7.8		
	9400	HUAN	S	1340.3	1341.2	2.3	24.1	13.1		0

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

JANUARY 1980

DAY OF MONTH	FREQUENCY	STATION	TYPE		STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	POLARIZATION OR REMARKS
					UT	UT	MINUTES	PEAK	MEAN		
12	9500	POTS	4	S/F	1340.5	1342	4.0	17			
	3000	POTS	4	S/F	1340.5	1341.0	5.5	30			
	10400	BERN	20		1340.7	1341.0	7.0	11.0			ONLY PAPER REC
	9400	HUAN		PBI	1342.6	1342.6	22.4	6.9	4.4		0
	7000	SAOP	45	C	1345.6	1346.4	5.0	41.0			0
	2650	DWIN	45	C	1359.0	1400	6.0	165	50		
	2800	OTTA	4	S/F	1359.2	1359.9	4.0D	156.0			
	536	ONDR	8	S	1359.2	1359.2	.3	42			
	930	BORD	46	C	1359.4	1400	8.6	64	15		
	9500	POTS	3	S	1359.5	1359.9	1.0	11			
	3000	POTS	4	S/F	1359.5	1400.0	4.5	121			
	1470	POTS	4	S/F	1359.5	1400.0	4.5	84			
	113	POTS	42	SER	1359.7	1401.3	3.5	200	1		III
	234	POTS	4	S/F	1359.9	1400.2	.3	580	120		III
	7000	SAOP	45	C	1404.2	1405.2	13.0	35.0			17R
	2800	OTTA	21	GRF	1510.0	1620	160.0	12.2	5.8		
	2800	OTTA	1	S	1547.5	1548	1.5	5.2	2.6		
	7000	SAOP	3	S	1552.4	1553.4	8.0	22.0			0
	2800	OTTA	8	S	1602.1	1602.5	.5	20.0			
	9400	HUAN		S	1648.2	1648.6	1.4	19.0	8.0		0
	7000	SAOP	4	S/F	1652.6	1653.6	4.4	20.0			0
	2800	OTTA	20	GRF	1830.0	1900	70.0	4.0	3.4		
	2800	OTTA	8	S	1832.3	1832.5	.5	3.6	1.8		
	9400	HUAN		S	1833.2	1854.8	65.2	17.2	4.3		0
	9400	HUAN		S	1849.0	1849.4	1.3	27.6	12.7		0
	7000	SAOP	3	S	1853.9	1854.7	2.8	27.0			0
	7000	SAOP	1	S	1915.0	1915.2	5.8	10.0			0
	2800	OTTA	8	S	1930.2	1930.5	.8	2.6			
	2800	OTTA	21	GRF	2000.0	2025	40.0	3.6	1.8		
	9400	HUAN		S	2013.6	2013.8	.9	27.6	13.1		0,SPIKE
	2695	PENT	3	S	2014.0	2014	1.5	31.0	7.8		
	2800	OTTA	45	C	2020.0	2021	4.0	34.4	9.6		
	9400	HUAN		S	2020.1	2020.7	1.7	29.3	13.4		0
	9400	HUAN		PBI	2021.8	2021.8	35.2	5.2	1.4		0
	2695	PENT	260	FAL	2040.0	2047	7.0	-3.6	-1.8		
	2695	PENT	260	FAL	2120.0	2210	50.0	-9.6			
13	260	ONDR	44	NS	0030.0E		355.0D	38			
	3750	TYKW	45	C	0018.0	0019.7	3.0	48	5		
	1000	TYKW	45	C	0018.5	0019.7	3.0	52	12		
	2000	TYKW	45	C	0018.5	0019.7	3.0	35	7		
	1415	MANI	4	S/F	0019.2	0020.2	2.2	50.4	16.8		
	17000	NOBE	1	S	0019.2	0019.4	.6	14			0
	2695	MANI	3	S	0019.2	0020.2	3.1	33.5	11.2		
	606	MANI	1	S	0019.8	0020.1	.6	7.6	2.5		
	4995	MANI	3	S	0019.9	0020.2	1.6	12.2	4.1		III
	3750	TYKW	29	PBI	0021.0		35.0	4	2		
	3750	TYKW	5	S	0320.0	0321.3	3.0	17	10		
	9400	TYKW	5	S	0320.0	0321.3	3.0	57	25		
	2000	TYKW	20	GRF	0320.0	0325	30.0	3	1.5		
	4995	MANI	3	S	0320.0	0321.8	6.7	46.5	15.5		
	8800	MANI	3	S	0320.3	0321.8	6.4	56.8	18.9		
	2695	MANI	3	S	0321.2	0323.7	3.8	17.4	5.6		
	3750	TYKW	30	PBI	0323.0		125.0	10	5		
	9400	TYKW	30	PBI	0323.0		120.0	21	10	U	
	35000	NAGO	20	GRF	0325.0	0357	73.0	23			
	9400	TYKW	5	S	0342.0	0345	15.0	9	3		
	2000	TYKW	5	S	0418.0	0418.6	2.0	1	.3		
	1415	MANI	8	S	0441.7	0442.1	.8	11.4	3.8		III
	606	MANI	3	S	0441.7	0443.3	5.3	28.4	9.5		
	6100	KISV	3	S	0652.0	0653	3.0	4			
	9100	GORK	21	GRF	0727.5	0838.5	213.0E	19	9		
	6100	KISV	24	R	0728.0	0730		4			
	15000	KISV	32	ABS	0730.0	0740	10.0	-8			
	6100	KISV	32	ABS	0735.0	0741	10.0	-5			
	15000	KISV	20	GRF	0743.0	0743	5.0	8			
	6100	KISV	32	ABS	0749.0	0753	5.0	-3			
	6100	KISV	28	PRE	0755.0	0801.3		3			
	15000	KISV	8	S	0801.2	0801.5	2.0	14			
	6100	KISV	8	S	0801.3	0801.5	1.0	6			
	6100	KISV	24	R	0801.7	0830	28.0	3			
	3100	CRIM	25	R	0829.0	0929.0		12			
	127	TORN	41	F	0849.4	0904.9	23.5	14			
	536	ONDR	8	S	0928.2	0928.2	.3	27			
	810	KRAK	0	S	0928.3	0928.3	.5	46			
	930	BORD	41	F	0928.4	0928.5	.3	17	2		
	6100	KISV	32	ABS	0950.0	1002	18.0	-4			
	113	POTS	4	S/F	0951.7	0951.7	.3	550	50		
	127	TORN	42	SER	1005.9	1021.5	17.8	33			
	3100	CRIM	1	S	1008.5	1019.0	3.0	10	3		
	9500	POTS	28	PRE	1012.5	1019.5	14.0	31			
	9100	GORK	1	S	1012.9	1013.7	27.0	10	5		
	6100	KISV	46	C	1013.0	1020	10.0	16			
	6100	KISV			1013.0	1013.3		4			
	33	UPIC	45	C	1018.1	1019	3.8				

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

JANUARY 1980

DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	POLARIZATION OR REMARKS
13	3000	POTS	3 S	1018.2	1019.5	3.8	8.9			
	1470	POTS	4 S/F	1018.5	1019.5	3.5	15			
	9100	GORK	4 S/F	1018.7	1019.6	33.0	34			
	10400	BERN	21	1018.8	1019.6	6.0	23.0			ONLY PAPER REC
	950	GORK	2 S/F	1018.9	1019.4	9.0	6			
	930	BORD	41 F	1019.6	1019.6	.2	12	2		
	810	KRAK	8 S	1019.7	1019.7	.3	16			
	113	POTS	4 S/F	1034.7	1034.7	.2	1400	500		III
	29	UPIC	45 C	1047.3	1047.9	1.8				
	33	UPIC	45 C	1047.5	1047.8	1.8				
	113	POTS	42 SER	1047.7	1048.9	1.2	150	1 E		III
	6100	KISV		1105.0	1122		6			
	6100	KISV	4 S/F	1105.0	1106.5	2.0	8			
	1470	POTS	1 S	1105.5	1106.0	2.5	2.0			
	9500	POTS	1 S	1106.0	1106.8	2.0	6.1			
	15000	KISV	8 S	1117.0	1119.5	3.0	19			
	810	KRAK	2 S/F	1119.0	1119.5	1.0	12	6		
	3000	POTS	3 S	1121.5	1122.0	1.5	7.8			
	1470	POTS	1 S	1121.5	1122.2	1.5	2.8			
	930	BORD	41 F	1121.8	1121.8	1.0	28	2		
	9500	POTS	1 S	1121.9	1122.2	1.1	3.1			
	6100	KISV	4 S/F	1140.0	1159		2			
	930	BORD	41 F	1225.4	1225.4	1.0	18	2		
	810	KRAK	4 S/F	1254.0	1255.0	1.0	42	21		
	9400	HUAN	S	1448.6	1449.5	3.8	7.2	3.8		0
	2800	OTTA	1 S	1449.0	1449.9	1.5	7.8	4.0		
	7000	SAOP	4 S	1454.3	1454.9	1.3	21.0			0
	9400	HUAN	S	1509.6	1515.7	58.2	9.0	3.9		0
	930	BORD	41 F	1614.6	1616.2	2.0	42	2		
	2800	OTTA	40 F	1620.0	1620.7	.8	26.0			
	9400	HUAN	S	1620.3	1621.2	1.4	61.3	26.1		1
	9400	HUAN	PBI	1621.7	1621.7	33.6	3.6	3.0		0
	9400	HUAN	S	1703.7	1704.2	2.0	23.4	10.5		R
	2695	PENT	3 S	1704.0	1704.3	1.0	12.4	6.2		
	7000	SAOP	4 S/F	1708.0	1709.4	2.6	42.0			28R
	2800	OTTA	21 GRF	1727.0	1750	40.0	3.6	1.8		
	2800	OTTA	1 S	1728.0	1729	2.0	3.0	1.5		
	9400	HUAN	S	1800.7	1832.3	59.6	30.6	20.8		0
	2800	OTTA	23 GRF	1810.0	1920	170.0	15.0	7.5		
	9400	HUAN	S	1814.0	1814.8	1.7	10.8	9.0		0
	9400	HUAN	S	1825.1	1825.7	1.2	12.6	7.2		0
	9400	HUAN	S	1834.8	1836.3	3.5	9.0	6.9		0
	7000	SAOP	45 C	1909.7	1931.0	47.6	41.0			4R,TWO BURSTS
	2800	OTTA	1 S	1913.0	1913.3	1.5	4.4	2.2		
	9400	HUAN	S	1928.1	2014.1	81.7	21.6	8.6		1
	2800	OTTA	8 S	1932.3	1932.7	.7	4.4	2.2		
	2695	PENT	1 S	2006.3	2007	3.0	5.2	3.5		
	2695	PENT	260 FAL	2115.0	2150	35.0	-6.6	-3.3		
14	260	ONDR	44 NS	0822.0E		357.0D	115	5		
	100	HIRA	44 NS	2150.0E	2250	150.0D	15	6		
	200	HIRA	44 NS	2150.0E	0610	580.0D	10	5		WL
	9400	TYKW	5 S	0105.6	0106.0	1.0	12	2		
	3750	TYKW	5 S	0111.0	0113.0	4.0	19	4		
	9400	TYKW	5 S	0112.0	0113.0	3.0	10	3		
	2000	TYKW	5 S	0112.0	0113.0	2.0	1.5	.5		
	3750	TYKW	29 PBI	0115.0		30.0	3	1		
	9400	TYKW	29 PBI	0115.0		30.0	5	2.5		
	3750	TYKW	5 S	0150.0	0200	30.0	6	2		
	9400	TYKW	5 S	0203.0	0203.3	1.0	22	4		
	3750	TYKW	5 S	0447.0	0447.6	3.0	3	1		
	2000	TYKW	5 S	0447.0	0447.8	2.0	1	.3		
	5730	IRKU	1 S	0617.0	0620.7	7.0	17			
	9400	TYKW	5 S	0619.0	0620.8	3.0	20	7		
	6100	KISV	4 S/F	0619.0	0620.7	3.0	15			
	3750	TYKW	5 S	0620.0	0621.0	2.0	8	3		
	2000	TYKW	5 S	0620.0	0621.0	2.0	1.5	.5		
	3100	CRIM	1 S	0620.0	0621.0	2.0	14	4		
	15000	KISV	4 S/F	0620.0	0621	2.0	13			
	3750	TYKW	29 PBI	0622.0		30.0	2	1		
	9400	TYKW	29 PBI	0622.0		35.0	8	4		
	6100	KISV	27 RF	0622.0	0641	40.0	11			
	9100	GORK	20 GRF	0633.5	0644.1	26.0	9	35		
	3100	CRIM	1 S	1022.0	1122.5	2.0	9	3		
	430	KRAK	8 S	1058.5	1059.0	1.0	139			
	6100	KISV	3 S	1101.0	1102	2.0	4			
	930	BORD	41 F	1153.7	1154.2	1.0	36	2		
	430	KRAK	40 F	1157.0	1218.5	24.5	30	5		
	127	TORN	42 SER	1216.4	1217.4	15.0	570			
	113	POTS	4 S/F	1216.6	1217.3	1.6	100	20		
	430	KRAK	46 C	1221.5	1222.0	5.0	177	24		
	810	KRAK	46 C	1222.0	1224.0	3.5	161	35		
	536	ONDR	45 C	1222.0	1222.3	4.5	52	12		
	930	BORD	41 F	1222.0	1223.6	3.2	113	5		
	808	ONDR	45 C	1222.0	1223.6	4.0	55	4		

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

JANUARY 1980

DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	POLARIZATION OR REMARKS
14	1470	POTS	4 S/F	1223.5	1223.6	1.5	8.4			
	930	BORD	8 S	1241.4	1241.5	.2	19	2		
	430	KRAK	41 F	1247.5	1252.2	7.7	25	8		
	430	KRAK	1 S	1311.0	1311.7	1.0	5	2		
	430	KRAK	4 S/F	1315.5	1316.2	1.2	229	30		
	234	POTS	4 S/F	1315.8	1316.1	.8	500	50		
	430	KRAK	41 F	1319.3	1319.5	2.0	77	19		
	430	KRAK		1319.3	1320.5		49			
	430	KRAK		1353.5	1357.5		68			
	430	KRAK	46 C	1353.5	1354.5	6.5	161	14		
	536	ONDR	2 S/F	1356.7	1357.3	1.5	22	2.8		
	9400	HUAN	S	1637.3	1638.5	2.5	24.1	14.4		8
	7000	SAOP	4 S/F	1637.4	1638.4	3.8	32.0			8R
	2800	OTTA	3 S	1637.5	1638.7	5.0	20.2	5.0		
	9400	HUAN	PBI	1639.0	1639.0	27.5	6.9	4.7		8
	2800	OTTA	27A RF	1947.0		160.0	4.6	3.9		
	2800	OTTA	24 R	1947.0	1951	4.0	4.6	2.0		
	2800	OTTA	24P R	1951.0		112.0	4.6			
	2800	OTTA	46F C	2034.0	2045	27.0	91.0	37.0		
	2800	OTTA	30 PBI	2101.0	2101	30.0	9.0	4.4		
	2800	OTTA	22 GRF	2106.0	2107.5	14.0	13.0	4.4		
	2695	PENT	26 FAL	2143.0	2227	44.0	-4.6	-2.3		
	2695	PENT	1 S	2220.0	2220.5	2.0	4.4	2.2		
15	100	HIRA	43 NS	0324.0	0550	250.0D	50	13		
	100	GORK	44 NS	0630.0E		330.0D		5		
	200	GORK	44 NS	0631.0E		329.0D		15		
	127	TORN	44 NS	0810.0E	1051	232.0D	20	2		V0
	260	ONDR	44 NS	0826.0E		344.0D	64	5		
	200	HIRA	44 NS	2149.0E	2243	600.0D	5	2		WL
	3750	TYKW	5 S	0242.0	0244	6.0	1.5	.5		
	2000	TYKW	45 C	0338.5	0340.5	3.0	9	1		
	1000	TYKW	45 C	0338.5	0340.6	3.5	8	2		
	3750	TYKW	21 GRF	0420.0	0520	120.0	7	3		
	9400	TYKW	20 GRF	0455.0	0510	80.0	4	2		
	2000	TYKW	20 GRF	0455.0	0510	80.0	4	2		
	930	BORD	41 F	0758.0	0758.4	.5	44	2		
	3100	CRIM	24 R	0828.0	0929.0		7			
	204	IIMI	8 S	1118.2	1118.2	.5	600	450		
	430	KRAK	8 S	1118.5	1118.7	.5	15			
	234	POTS	4 S/F	1118.8	1119.0	.4	1400	300		
	260	ONDR	8 S	1118.8	1118.8	.3	192			
	234	POTS	8 S	1134.3	1134.4	.1	220	70		
	204	IIMI	8 S	1134.3	1134.3	.3	400	300		
	430	KRAK	2 S/F	1137.8	1138.2	.7	21			
	234	POTS	42 SER	1203.2	1205.2	2.1	220	5		
	930	BORD	41 F	1221.3	1221.4	.2	36	2		
	7000	SAOP	45 C	1258.4	1259.6	1.6	15.0			18R,TWO BURSTS
	9400	HUAN	S	1608.8	1617.0	56.8	9.2	5.6		R
	2695	PENT	20 GRF	2000.0	2055	65.0	2.8	1.4		
	9400	TYKW	5 S	2241.0	2245.0	8.0	8	3		
16	200	GORK	44 NS	0620.0E		280.0D		10		
	100	GORK	43 NS	0637.0		260.0		5		
	260	ONDR	44 NS	0836.0E		342.0D	20			
	200	HIRA	44 NS	2149.0E	2250	600.0D	7	3		WL
	3750	TYKW	21 GRF	0010.0	0029	70.0	4	2		
	3750	TYKW	5 S	0010.0	0012.2	6.0	3	1		
	2000	TYKW	5 S	0017.0	0018	3.0	3	1		
	1000	TYKW	45 C	0031.0	0031.4	2.0	14	3		
	3750	TYKW	45 C	0031.0	0031.3	3.0	15	3		
	2000	TYKW	45 C	0031.0	0031.4	1.0	8	1.5		
	9400	TYKW	21 GRF	0038.0	0042	60.0	5	2		
	3750	TYKW	45 C	0038.5	0041.6	12.0	4.5	1		
	100	GORK	4 S/F	0611.3	0613.5	46.0	100 D			
	9100	GORK	1 S	0626.2	0630.0	51.0	63	3		
	6100	KISV	24 R	0700.0	0848		9			
	950	GORK	2 S/F	0833.0	0835.0	25.0	10			
	6100	KISV	32 ABS	0905.0	0930	31.0	-4			
	6100	KISV	32 ABS	1004.0	1008	4.0	-5			
	2950	GORK		1006.0	1012.8		40			
	2950	GORK	46 C	1006.0	1012.2	12.0	50			
	810	KRAK	23 GRF	1007.5	1011.5	6.0	37	10		
	3000	POTS	28 PRE	1008.0	1012.4	8.0	43			
	1470	POTS	28 PRE	1008.0	1012.4	8.0	28			
	2650	DWIN	2 S/F	1008.0	1012	8.0	50	20		
	6100	KISV		1008.0	1013		16			
	3100	CRIM	3 S	1008.0	1012.0	10.0	28	9		
	6100	KISV	46 C	1008.0	1012.3	6.0	16			
	6100	KISV		1008.0	1010.5		4			
	950	GORK	2 S/F	1008.2	1011.6	52.0	25			
	650	GORK	2 S/F	1009.2	1011.6	54.0U	31	7		
	930	BORD	45 C	1010.0	1011.4	5.0	31	12		
	536	ONDR	2 S/F	1010.5	1011.4	2.5	19	9.5		
	808	ONDR	3 S	1010.8	1011.7	2.5	25	8		

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

JANUARY 1980

DAY OF MONTH	FREQUENCY	STATION	TYPE		STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	POLARIZATION OR REMARKS
					UT	UT	MINUTES	PEAK	MEAN		
16	9500	POTS	1	S	1011.5	1013.0	2.5	7.6			
	9100	GORK	20	GRF	1011.6	1012.3	19.0	9	45		
	100	GORK	4	S/F	1012.2	1014.2	31.0	100 D			
	33	UPIC	45	C	1012.3	1012.4	1.0				
	29	UPIC	45	C	1012.5	1012.5	1.2				
	127	TORN	47	GB	1217.1	1217.7	1.2	580	290		
	113	POTS	4	S/F	1227.1	1227.4	.4	700	70		III
	234	POTS	4	S/F	1227.3	1227.4	.2	200	20		III
	9400	HUAN		S	1340.8	1407.2	61.5	6.0	4.0		0
	2800	OTTA	20	GRF	1600.0	1640	60.0	2.0	1.0		
	2800	OTTA	240	R	1710.0	1750	40.0	3.6			
	2800	OTTA	21	GRF	1810.0	1950	160.0	3.6	1.8		
	2800	OTTA	1	S	2037.5	2038	1.5	3.2	1.6		
17	200	GORK	44	NS	0627.0E		333.0D		5		
	100	GORK	43	NS	0628.0		330.0		5		
	127	TORN	44	NS	0820.0E	1053.4	320.0D	55			V1
	260	ONDR	44	NS	0842.0E		336.0D	27			
	430	KRAK	8	S	0906.5	0906.5	.2	16			
	430	KRAK	41	F	0919.0	0922.0	6.0	52	13		
	204	IZMI	41	F	0923.5	0924.3	1.7	360			
	9100	GORK	1	S	1117.0	1117.4	9.0	17	8		
	2800	OTTA	20	GRF	1745.0	1810	25.0	3.2	1.6		
	9400	HUAN		S	1757.7	1817.9	46.6	5.6	3.1		0
	9400	HUAN		S	2134.6	2141.1	21.2	8.4	3.3		0
18	260	ONDR	44	NS	0820.0E		367.0D	74	5		
	204	IZMI	41	F	0827.3	0831.5	6.2	300			
	113	POTS	42	SER	0827.6	0831.7	5.7	5000	15		III
	234	POTS	41	F	0831.1	0831.1	.6	200	1 E		III
	260	ONDR	8	S	0849.3	0849.3	.3	216			
	930	BORD	8	S	1100.7	1100.7	.1	19	1		
	127	TORN	4	S/F	1134.7	1135.4	1.7	130	80		
	33	UPIC	45	C	1134.7	1134.7	1.0				
	113	POTS	4	S/F	1134.8	1134.8	1.0	200	35		III
	29	UPIC	45	C	1134.9	1135.1	1.0				
	2800	OTTA	1	S	1519.0	1521	5.0	3.0	1.2		
	2800	OTTA	8	S	1618.1	1618.1	.1	11.2			
	2800	OTTA	1	S	1641.0	1642.2	3.0	3.0	1.5		
	2800	OTTA	21	GRF	1950.0	2020	140.0	4.4	3.6		
	2695	PENT	8	S	2124.0	2124.2	.3	5.4			
19	200	GORK	44	NS	0604.0E		326.0D		5		
	260	ONDR	44	NS	0927.0E		289.0D	16			
	1000	TYKW	5	S	0100.0	0100.7	2.0	7	1		
	2000	TYKW	5	S	0100.0	0100.9	1.5	4.5	1.5		
	1000	TYKW	45	C	0110.5	0111.5	1.5	7	1		
	204	IZMI	41	F	0755.5	0804.0	24.0	480			
	2950	GORK	1	S	0906.9	0907.6	55.0	14	3		
	3000	POTS	3	S	0907.0	0908	2.2	14			
	3100	CRIM	3	S	0907.0	0907.5	3.5	16	5		
	1470	POTS	1	S	0907.5	0908	1.5	23			
	2800	OTTA	45	C	1424.2	1424.7	2.0	3.4	1.7		
	2800	OTTA	1	S	1703.0	1704	2.0	6.4	3.0		
	2800	OTTA	1	S	1747.5	1749	2.0	2.0	1.0		
	9400	HUAN		S	1804.1	1818.2	38.7	5.0	3.2		0
	2800	OTTA	1	S	1809.0	1810.5	5.0	5.0	1.7		
	2800	OTTA	20	GRF	1900.0	1910	25.0	3.6	1.8		
20	3750	TYKW	45	C	0056.0	0100.2	20.0	4	1		
	1000	TYKW	45	C	0056.5	0056.7	2.0	12	2.5		
	2000	TYKW	45	C	0058.0	0100.5	5.0	2	.5		
	1000	TYKW	45	C	0058.5	0100.0	5.0	10	1.5		
	260	ONDR	42	SER	0930.0	0953	48.0	10			
	260	ONDR	45	C	1301.3	1301.3	1.0	28			
	2800	OTTA	20	GRF	1805.0	1813	70.0	2.4	1.8		
21	260	ONDR	44	NS	0820.0E		355.0D	17	2		
	127	TORN	43	NS	0823.0	1354.8	377.0	92	21		V1
	200	GORK	44	NS	0826.0E		216.0D		10		
	100	GORK	43	NS	0838.6		201.0E		10		
	15000	KISV	27	RF	0820.0	0850	60.0	17			
	950	GORK	20	GRF	0824.8	0835.3	167.0	5	25		
	9500	POTS	20	GRF	0825.0	0850	95.0	14			
	3000	POTS	20	GRF	0825.0	0835.5	65.0	16			
	1470	POTS	22	GRF	0825.0	0831.8	25.0	17			
	6100	KISV	24	R	0825.0	0831	6.0	6			
	650	GORK	20	GRF	0825.6	0837.8	177.0	6	25		
	2950	GORK	20	GRF	0826.8	0835 U	75.0	20	10		
	3100	CRIM	7	C	0827.0	0832.0	16.0	26	8		
	9100	GORK	20	GRF	0830.8	0852.0	62.0	10	5		
	6100	KISV	27	RF	0831.0	0854	39.0	7			
	100	GORK	4	S/F	0836.0	0837.1	26.0	120			
	113	POTS	27	RF	0839.0	0822.5	337.0D	200			RISE+I
	3100	CRIM	24	R	0840.0E	0840.0	72.0D	18			

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

JANUARY 1980

DAY OF MONTH	FREQUENCY	STATION	TYPE		STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	POLARIZATION OR REMARKS
					UT	UT	MINUTES	PEAK	MEAN		
21	930	BORD	41	F	1043.5	1043.6	.2	18	2		
	930	BORD	8	S	1149.0	1149	.1	13	1		
	930	BORD	41	F	1548.6	1548.8	.8	20	3		
22	100	GORK	44	NS	0600.0E		354.0D		5		
	127	TORN	44	NS	0710.0E	1459.3	470.0D	87	3.5		V1
	260	ONDR	44	NS	0822.0E		352.0D	24	2		
	5730	[illegible]KU	20	GRF	0440.0	0445.5	14.0	11			
	3750	[illegible]KW	5	S	0607.0	0607.7	4.0	5	1		
	2000	[illegible]KW	5	S	0607.0	0607.8	2.0	1.5	.5		
	6100	[illegible]ISV	8	S	0607.0	0607.5	2.0	6			
	3750	TYKW	5	S	0634.5	0635.4	2.5	5	2.5		
	2000	TYKW	5	S	0634.5	0635.5	2.5	3	1.5		
	6100	KISV	4	S/F	0635.5	0636	4.0	5			
	9400	TYKW	5	S	0636.5	0636.8	.6	7	3		
	3750	TYKW	29	PBI	0637.0		25.0	2	1		
	2000	TYKW	29	PBI	0637.0		20.0	1.5	.5		
	3100	CRIM	24	R	0745.0	0900.0	75.0	7			
	6100	KISV	1	S	1123.5	1123.8	2.0	3			
	930	BORD	8	S	1232.3	1232.3	.1	15	1		
	930	BORD	8	S	1301.5	1301.5	.1	37	1		
	2800	OTTA	2	S/F	1503.0	1503.5	2.0	2.0			
	2800	OTTA	240	R	1524.0	1530	6.0	3.0	1.5		
	9400	HUAN		S	1530.7	1548.2	59.0	6.8	3.3		0
	2800	OTTA	22	GRF	1535.0	1605	135.0	2.6			
	2800	OTTA	2	S/F	1801.0	1803	6.0	1.8	.9		
	2800	OTTA	21	GRF	1840.0	1910	175.0	3.6	1.8		
	2800	OTTA	4	S/F	1858.0	1859	5.0	20.0	10.0		
	7000	SAOP	45	C	1858.3	1858.8	13.0	37.0			22R
23	200	GORK	44	NS	0549.0E		371.0D		15		
	204	IZMI	43	NS	0700.0		300.0	50			
	127	TORN	44	NS	0710.0E	1109.1	450.0D	160	6		V1
	100	GORK	43	NS	0750.0		250.0E		5		
	260	ONDR	44	NS	0810.0E		367.0D	88	6		
	33	UPIC	43	NS	1013.9	1014	161.7				
	29	UPIC	43	NS	1014.2	1111.3	161.0				
	200	HIRA	44	NS	2147.0E	0047	600.0D	20	5		0
	606	MANI	3	S	0150.3	0150.8	.9	35.4	11.8		
	2695	MANI	3	S	0150.5	0151.1	1.2	13.1	4.4		
	1415	MANI	3	S	0150.8	0151.1	1.9	6.2	2.1		
	4995	MANI	1	S	0150.9	0151.2	.9	4.5	1.5		
	3750	TYKW	5	S	0151.0	0151.4	2.0	8	2		
	2000	TYKW	5	S	0151.0	0151.4	2.0	9	2		
	1000	TYKW	5	S	0151.0	0151.4	3.0	4	1		
	3750	TYKW	5	S	0323.0	0324.8	3.0	11	3		
	9400	TYKW	5	S	0324.0	0324.7	2.0	13	4		
	9400	TYKW	29	PBI	0326.0		35.0	2	1		
	3750	TYKW	29	PBI	0326.0		40.0	4	2		
	9400	TYKW	20	GRF	0430.0	0446	90.0	7	2.5		
	3750	TYKW	20	GRF	0430.0	0446	90.0	8	3		
	2000	TYKW	21	GRF	0430.0	0446	90.0	4.5	1		
	17000	NOBE	20	GRF	0437.0	0454.2	55.0	7			0
	650	GORK	4	S/F	0746.4	0747.4	48.0	22	4		
	200	GORK			0747.0	0748.9		95			
	200	GORK	46	C	0747.0	0747.8	52.0	95	D		
	950	GORK	4	S/F	0747.0	0747.2	58.0	12			
	100	GORK	45	C	0747.1	0747.4	32.0	120			
	100	GORK			0747.1	0748.0		120			
	2950	GORK	1	S	0747.4	0747.6	12.0	8	4		
	3100	CRIM	25	R	0841.0	1200	D 199.0D	18			
	3100	CRIM	1	S	0902.0	0904.5	3.0	12	4		
	6100	KISV	4	S/F	0914.0	0916	3.0	6			
	15000	KISV	27	RF	0914.0	0916	22.0	6			
	9100	GORK	20	GRF	0914.4	0916.4	155.0	8	4		
	2950	GORK	21	GRF	0914.8	0917.0	12.0	3	15		
	2950	GORK	2	S/F	0916.0	0916.3	7.0	16			
	6100	KISV	29	PBI	0917.5	0917.5	13.0	4			
	113	POTS	42	SER	1109.0	1109.3	2.7	200	3		III
	9400	HUAN		S	1220.3	1254.3	48.0	8.9	2.3		0
	113	POTS	4	S/F	1251.5	1252.1	3.2	200	20		III
	3000	POTS	3	S	1252.5	1253.8	2.5	13	U		
	1470	POTS	1	S	1253.0	1253.5	2.0	3.0			
	930	BORD	41	F	1253.0	1254.7	2.0	17	2		
	7000	SAOP	3	S	1253.2	1254.0	2.0	14.0			0
	9500	POTS	1	S	1253.5	1254.0	1.5	7.6			
	3100	CRIM	1	S	1255.0	1256.0	2.0	13	4		
	234	POTS	4	S/F	1325.4	1325.6	.2	200	40		III
	930	BORD	41	F	1511.6	1511.6	.4	27	2		
	930	BORD	41	F	1514.6	1514.6	.3	23	2		
	9400	HUAN		S	1637.3	1706.5	36.0	11.9	5.0		1
	7000	SAOP	40	F	1646.0		42.0				0
	2800	OTTA	21	GRF	1703.0		105.0	2.6			
	9400	HUAN		S	1723.1	1738.0	33.2	12.6	8.2		R
	2800	OTTA	21	GRF	1728.0	1738	32.0	3.6	1.8		

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

JANUARY 1980

DAY OF MONTH	FREQUENCY	STATION	TYPE		STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	POLARIZATION OR REMARKS
					UT	UT	MINUTES	PEAK	MEAN		
23	7000	SAOP	45	C	1732.2	1734.6	12.4	53.0			33R,TWO BURSTS
	9400	HUAN		S	1733.5	1734.4	2.5	31.2	9.5		R
	2800	OTTA	4	S/F	1734.1	1737	5.0	77.0	25.0		
	2800	OTTA	260	FAL	1900.0	1905	5.0	-2.4	-1.2		
	2800	OTTA	20	GRF	1925.0	1930	33.0	3.0	1.5		
24	100	HIRA	43	NS	0020.0	0107	150.0	70	20		
	200	GORK	43	NS	0556.0		364.0D		5		
	260	ONDR	44	NS	0020.0E		358.0D	84	9		
	127	TORN	43	NS	1103.0U	1203.0	300.0D	130	1		V1
	200	HIRA	44	NS	2145.0E	0023	190.0D	140	60		ML
	100	HIRA	44	NS	2145.0E	2210	600.0D	700	70		
	3750	TYKW	21	GRF	0030.0	0050	210.0	5	3		
	9400	TYKW	21	GRF	0030.0	0050.3	210.0	10	2		
	2000	TYKW	21	GRF	0030.0	0050	210.0	2	1		
	2000	TYKW			0058.0	0059.8		16			
	3750	TYKW	45	C	0058.0	0058.9	5.0	18	8		
	9400	TYKW			0058.0	0100.5		25			
	1000	TYKW	45	C	0058.0	0058.4	5.0	30	4		
	9400	TYKW	45	C	0058.0	0059.0	4.0	25	12		
	3750	TYKW			0058.0	0100.5		18			
	2000	TYKW			0058.0	0059.0		14			
	2000	TYKW	45	C	0058.0	0100.5	6.0	20	6		
	1400	SYDN	40	F	0058.2	0100.4	3.7				
	700	SYDN	2	S	0100.0	0100.4	.9				
	9400	TYKW	29	PBI	0102.0		30.0	8	4		
	3750	TYKW	29	PBI	0103.0		30.0	4.5	2.5		
	700	SYDN	4	S	0106.2	0106.6	.4				
	2000	TYKW	5	S	0159.0	0200.5	11.0	5	1		
	3750	TYKW	5	S	0200.0	0200.3	1.0	3	1		
	3750	TYKW	5	S	0225.0	0226.9	25.0	4	1		
	1400	SYDN	8	S	0225.7	0226.6	1.9				
	2000	TYKW	45	C	0226.0	0226.5	2.0	14	4		
	700	SYDN	45	C	0226.0	0226.9	1.5				
	1000	TYKW	5	S	0226.0	0226.8	2.0	6	2		
	3750	TYKW	5	S	0428.0	0430	5.0	1	.4		
	9400	TYKW	29	PBI	0448.0		7.0	2	1		
	3750	TYKW	5	S	0456.0	0457	6.0	1.5	.5		
	3750	TYKW	21	GRF	0456.0	0540	120.0	4	2		
	2000	TYKW	5	S	0456.5	0457.3	3.0	1	.3		
	2000	TYKW	20	GRF	0505.0	0530	50.0	1	.5		
	3750	TYKW	5	S	0519.0	0519.6	1.5	3	1		
	9400	TYKW	5	S	0519.0	0519.6	2.0	8	2		
	5730	IRKU	1	S	0524.2	0524.7	2.0	5			
	950	GORK	3	S	0615.9	0616.0	12.0	8	4		
	3750	TYKW	5	S	0628.0	0630	10.0	1	.5		
	6100	KISV	4	S/F	0644.0		11.0	5	D		
	9400	TYKW	5	S	0646.0	0646.9	2.0	9	4		
	5730	IRKU	1	S	0646.3	0646.9	1.5	4			
	15000	KISV	4	S/F	0646.5	0647	4.0	14			
	9100	GORK	1	S	0715.9	0717.7	67.0	11	5		
	5730	IRKU	1	S	0717.0	0717.8	4.0	5			
	6100	KISV	4	S/F	0717.0	0717.8	2.0	8			
	15000	KISV	3	S	0717.5	0718	1.0	8			
	6100	KISV	29	PBI	0718.5	0718.5	7.0	4			
	6100	KISV	4	S/F	0800.0	0806.7	8.0	17			
	2950	GORK	20	GRF	0803.3	0806.5	228.0	6			
	9100	GORK	21	GRF	0803.7	0809.2	158.0	6	3		
	15000	KISV	1	S	0806.0	0806.5	1.0	11			
	3100	CRIM	1	S	0806.0	0806.5	2.0	5	2		
	9100	GORK	1	S	0806.1	0806.6	15.0	13	7		
	6100	KISV	29	PBI	0808.0	0808	30.0	8			
	15000	KISV	32	ABS	0821.0	0837	15.0	-3			
	930	BORD	8	S	0825.5	0825.5	.2	25	2		
	930	BORD	8	S	0902.5	0902.6	.2	31	2		
	6100	KISV			0908.0	0959.5		13			
	6100	KISV			0908.0	1036		14			
	6100	KISV			0908.0	1114.5		9			
	6100	KISV			0908.0	0937		9			
	6100	KISV			0908.0	0915		7			
	6100	KISV	46	C	0908.0	0954.3	46.3D	18			
	9100	GORK	2	S/F	0913.7	0914.8	57.0	7	3		
	15000	KISV	3	S	0913.7	0914.7	4.0	9			
	15000	KISV	27	RF	0920.0	0951	40.0	9			
	9100	GORK	21	GRF	0933.9	0959.5	86.0	16			
	15000	KISV	27	RF	0935.0	0937.5	16.0	6			
	3100	CRIM	24	R	0935.0	1015.0		8			
	9500	POTS	3	S	0954.0	0954.2	1.0	11			
	9100	GORK	1	S	0954.0	0954.3	7.0	15	7		
	3000	POTS	8	S	0954.0	0954.1	.5	8.0			
	2950	GORK	1	S	0954.0	0954.3	4.0	77	35		
	1470	POTS	8	S	0954.0	0954.2	.5	3.1			
	15000	KISV	8	S	0954.0	0954.3	1.0	9			
	2950	GORK	20	GRF	0957.0	1019.1	34.0	45	2		
	15000	KISV	27	RF	0957.0	0959.5	24.0	9			

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

JANUARY 1980

DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	POLARIZATION OR REMARKS
				UT	UT	MINUTES	PEAK	MEAN		
24	430	KRAK	40 F	1246.0	1256.0	76.0D	55	8 D		
	9400	HUAN	S	1339.9	1345.0	13.0	7.3	4.6		0
	113	POTS	42 SER	1356.1	1356.6	3.1	150	1 E		
	2800	OTTA	21 GRF	1535.0	1615	90.0	7.6	3.8		
	2800	OTTA	3 S	1540.5	1543	4.5	13.8	7.4		
	7000	SAOP	20 GRF	1540.6		44.0	21.0			4R
	9400	HUAN	S	1541.2	1603.5	59.5	17.6	7.9		R
	2800	OTTA	29 PBI	1545.0	1545	9.0	5.0	2.5		
	2800	OTTA	1 S	1603.5	1604	1.5	2.0	1.0		
	2800	OTTA	20 GRF	1830.0	1930	140.0	4.4	2.2		
	7000	SAOP	3 S	1930.0	1930.5		13.0			19L
25	200	GORK	44 NS	0553.0E		329.0D		5		
	100	GORK	44 NS	0557.0E		324.0D		5		
	127	TORN	44 NS	0700.0E	1323	460.0D	22	1		V1
	260	ONDR	44 NS	0820.0E		359.0D	94	7		
	204	IZMI	43 NS	1040.0		120.0	35			
	100	GORK	4 S/F	0559.2	0600.5	22.0	70			
	100	HIRA	45 C	0630.0	0630.8	2.6	3600	420		
	100	GORK		0630.5	0631.2U		100 D			
	950	GORK	3 S	0630.5	0631.5	17.0	28	14		
	100	GORK	45 C	0630.5	0630.9	1 14.0	100 D			
	1000	TYKW	45 C	0630.5	0631.7	2.0	85	10		
	650	GORK	4 S/F	0630.6	0631.5	24.0	49	10		
	536	ONDR	42 SER	0849.0	0849.6	14.0	10			
	430	KRAK	41 F	0854.0	0949.2	123.0	260	3		
	930	BORD	41 F	1002.7	1002.7	.3	39	2		
	6100	KISV	1 S	1138.0	1139.5	5.0	3			
	1470	POTS	8 S	1139.0	1139.4	.7	5.1			
	430	KRAK	41 F	1217.5	1235.5	41.5	33	2		
	536	ONDR	42 SER	1234.7	1340.8	97.0	31			
	430	KRAK	8 S	1309.0	1309.0	.3	10			
	430	KRAK	40 F	1315.0	1342.3	35.5	9	4		
	9400	HUAN	S	1413.1	1515.4	87.3	7.3	3.1		1
	930	BORD	41 F	1425.0	1425.3	.4	10	2		
	2800	OTTA	8 S	1425.3	1425.5	.3	2.2	1.1		
	930	BORD	42 SER	1429.3	1432.8	7.9	226	4		
	9400	HUAN	S	1429.5	1429.8	1.7	9.1	5.5		0
	2800	OTTA	1 S	1429.8	1430	1.0	3.6	1.7		
	2800	OTTA	1 S	1432.5	1433	1.0	4.4	2.2		
	930	BORD	46 C	1444.0	1447.1	6.0	225	9		
	2800	OTTA	1 S	1444.0	1444.6	1.0	6.8	3.0		
	7000	SAOP	46 C	1444.0	1447.4		14.0			20L
	9400	HUAN	S	1446.3	1447.1	1.3	11.0	7.3		1
	2800	OTTA	45 C	1446.3	1447.3	2.0	21.0	10.0		
	2800	OTTA	21 GRF	1525.0	1645	195.0	9.0	6.5		
	9400	HUAN	S	1536.6	1537.2	1.6	5.5	3.6		0
	930	BORD	41 F	1539.6	1540	3.4	16	3		
	9400	HUAN	S	1554.6	1616.0	117.4	11.0	7.4		0
	9400	HUAN	S	1600.3	1601.2	1.5	12.8	7.3		0
	7000	SAOP	41 F	1600.7						
	7000	SAOP	3 S	1600.7	1601.6		16.0			0
	2800	OTTA	1 S	1600.8	1601.3	1.0	7.2	3.6		
	7000	SAOP	4 S/F	1607.0	1608.2	19.0	25.0			0
	9400	HUAN	S	1607.2	1608.0	1.4	18.3	6.6		0
	2800	OTTA	3 S	1607.5	1608	2.0	10.2	4.8		
	930	BORD	8 S	1609.4	1609.4	.1	27	1		
	7000	SAOP	21 GRF	1636.6						
	7000	SAOP	21 GRF	1636.6			9.0			0
	2800	OTTA	1 S	1656.6	1657	1.0	1.8	.9		
	2800	OTTA	1 S	1700.0	1700.4	1.0	5.4	2.7		
	7000	SAOP	3 S	1700.7E	1700.7		16.0			15L
	9400	HUAN	S	1717.5	1719.2	4.3	42.0	16.6		0
	7000	SAOP	46 C	1717.8	1719.6	16.6	41.0			0
	2800	OTTA	45 C	1717.8	1719.4	4.2	18.2	8.0		
	2800	OTTA	29 PBI	1722.0	1722	6.0	3.6	1.8		
	2800	OTTA	8 S	1827.5	1827.7	.5	5.4	1.8		
	2800	OTTA	0 S	1837.0	1837.3	.5	7.0	3.0		
	7000	SAOP	1 S	1920.3	1921.7		9.0			30R
	2800	OTTA	4 S/F	1920.9	1921.5	1.8	21.8	7.2		
	2695	PENT	1 S	2009.0	2009.9	1.5	2.0	1.0		
	2800	OTTA	47 GB	2050.0	2154.8	80.0	1045.0	314.0		
	9400	HUAN	C	2057.5	2100.2	9.8	2105.8	534.5		R
	9400	HUAN	PBI	2107.3	2107.3	96.0	276.0	110.8		0
	9400	HUAN	S	2122.8	2129.5	8.5	279.7	158.0		R
	9400	HUAN	S	2134.5	2135.6	3.8	110.8	84.1		R
	200	HIRA	48 C	2142.0E	2147 U	123.0D	210 U	30 U		ML,SUNRISE
	100	HIRA	48 C	2142.0E	2147 U	154.0D	1000 U	200 U		SUNRISE
	500	HIRA	48 C	2145.0E		125.0D	100 D			ML,SUNRISE
	2695	PENT	30 PBI	2210.0	2210	70.0D	37.0			
	2695	PENT	40 F	2211.0	2218.2	11.0	28.0			
	1000	TYKW	45 C	2215.0E	2303.8	100.0D	450	20 U		
	1000	TYKW		2215.0E	2242.1		300			
	9400	TYKW	20 GRF	2220.0E	2220	100.0D	50 U	25 U		
	3750	TYKW	20 GRF	2225.0E	2225	95.0D	20 U	10 U		

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

JANUARY 1980

DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	POLARIZATION OR REMARKS
				UT	UT	MINUTES	PEAK	MEAN		
25	2800	TYKW	45 C	2225.0E	2250	95.0D	25 U	8 U		
	606	MANI	4 S/F	2245.3	2304.8	32.2	102.5	34.6		
	2800	OTTA	1 S	2248.0	2250.5	4.0	8.8	4.4		
	1415	MANI	4 S/F	2248.4	2303.7	26.6	353.6	117.9		
26	200	GORK	44 NS	0647.0E		283.0D		5		
	260	ONDR	44 NS	0836.0E		314.0D	50	4		
	100	HIRA	44 NS	2143.0E	0432	628.0D	150	54		
	200	HIRA	44 NS	2143.0E	0442	620.0D	85	35		WR
	2800	TYKW	20 GRF	0030.0	0120	190.0	5	2		
	1000	TYKW	21 GRF	0030.0	0120	190.0	5	1.5		
	3750	TYKW	20 GRF	0030.0	0130	150.0	5	2		
	9400	TYKW	21 GRF	0100.0	0130	180.0	4	2		
	9400	TYKW	5 S	0150.0	0151	7.0	4	1		
	1000	TYKW	45 C	0225.0	0248.6	30.0	13	2		
	9400	TYKW	5 S	0410.0	0411	2.0	5	2		
	3750	TYKW	5 S	0410.0	0411.1	3.0	9	3.5		
	9400	TYKW	29 PBI	0412.0		45.0	2	1		
	3750	TYKW	29 PBI	0413.0		45.0	3.5	2		
	2950	GORK	40 F	0611.0E		45.0D				
	15000	KISV	32 ABS	0632.5	0644.5	13.0	-9			
	6100	KISV	32 ABS	0638.0	0652	17.0	2			
	5730	IRKU		0656.0	0704.4		11			R
	5730	IRKU		0656.0	0704.9		32 D			R
	5730	IRKU	45 C	0656.0	0659.0	10.0	32 D			R
	650	GORK	20 GRF	0657.6	0704.3	209.0	10	5		
	2950	GORK	23 GRF	0657.9	0824.0	180.0E	10			
	2800	TYKW		0658.0	0659.2		1			
	3750	TYKW	45 C	0658.0	0703.3	11.0	80	6		
	2800	TYKW		0658.0	0707.6		19			
	9100	GORK	29 PBI	0704.5	0704.5	218.0	14			
	2800	TYKW	45 C	0658.0	0703.4	11.0	57	7		
	9400	TYKW		0658.0	0704.1		25			
	9100	GORK	46 C	0658.0	0659.3	65.0	44			
	9400	TYKW	45 C	0658.0	0659.2	11.0	38	7		
	9100	GORK		0658.0	0704.0		27			
	3750	TYKW		0658.0	0659.2		15			
	6100	KISV	45 C	0658.3	0659.3	7.0	38			
	6100	KISV		0658.3	0703.5		11			
	6100	KISV		0658.3	0704		14			
	3100	CRIM	1 S	0658.5	0659.5	1.5	7	2		
	15000	KISV	45 C	0658.7	0704.3	6.0	21			
	15000	KISV		0658.7	0703.5		18			
	15000	KISV		0658.7	0659.7		15			
	950	GORK	4 S/F	0701.8	0703.2	3.0	10			
	2950	GORK	4 S/F	0701.9	0704.0	29.0	24			
	1000	TYKW	45 C	0702.0	0703.5	7.0	25	6		
	2695	MANI	4 S/F	0702.0	0704.2	4.1	39.2	13.0		
	1415	MANI	4 S/F	0702.0	0703.7	7.2	86.0	28.6		
	8800	MANI	4 S/F	0702.0	0703.7	2.3	32.6	10.8		
	3100	CRIM	1 S	0702.0	0704.0	3.0	10	3		
	4995	MANI	4 S/F	0702.0	0704.1	3.0	32.2	10.7		
	6100	KISV	29 PBI	0705.0	0705	12.0	8			
	3100	CRIM	1 S	0707.0	0707.5	2.0	5	2		
	9400	TYKW	29 PBI	0709.0		30.0	7	4		
	3750	TYKW	29 PBI	0709.0		20.0	3	1.5		
	113	POTS	8 S	0736.0	0736.1	.1	100	60		III
	15000	KISV	24 R	0705.0	0705		9			
	200	GORK	4 S/F	0815.0	0815.4	9.0	30 D			
	234	POTS	41 F	0838.9	0840.8	2.0	500	5		
	15000	KISV	32 ABS	0905.0	0923	24.0	-6			
	113	POTS	8 S	0954.2	0954.2	.1	200	70		III
	536	ONDR	2 S/F	1022.2	1022.8	1.0	13			
	430	KRAK	42 SER	1022.7	1023.0	16.0	24			
	430	KRAK	40 F	1044.0		55.0				
	33	UPIC	1 S	1108.0	1108.1	.4				
	100	GORK	41 F	1108.1	1108.2	45.0	100 D			
	100	GORK		1108.1	1111.0		100 D			
	29	UPIC	1 S	1108.2	1108.4	.4				
	127	TORN	4 S/F	1110.1	1110.9	2.0	350	170		
	33	UPIC	4 S/F	1110.1	1111.3	2.5				
	29	UPIC	4 S/F	1110.2	1111.2	2.6				
	3000	POTS	3 S	1137.5	1138.1	1.5	14 U			
	9500	POTS	1 S	1137.8	1138.2	1.2	4.6			
	1470	POTS	1 S	1138.0	1138.2	.5	1.9			
	7000	SAOP	1 S	1138.0	1138.4		9.0			18L
	3000	POTS	3 S	1151.0	1151.5	1.0	32 U			
	7000	SAOP	1 S	1303.4	1304.1		9.0			18R
	7000	SAOP	3 S	1331.0	1342.4	18.4	20.0			16L
	430	KRAK	27 RF	1340.5	1343.5	4.5	7	3		
	536	ONDR	2 S/F	1341.3	1342.2	2.0	10	1		
	9500	POTS	1 S	1341.5	1342.2	1.5	3.1			
	3000	POTS	3 S	1341.5	1342.1	1.0	9 U			
	1470	POTS	4 S/F	1341.5	1342.3	2.1	5.9			
	2800	OTTA	45 C	1341.8	1342.2	2.0	6.8	2.4		

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

JANUARY 1980

DAY OF MONTH	FREQUENCY	STATION	TYPE		STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	POLARIZATION OR REMARKS
					UT	UT	MINUTES	PEAK	MEAN		
26	33	UPIC	8	S	1409.4	1409.5	.6				
	29	UPIC	8	S	1409.5	1409.7	.5				
	2800	OTTA	27A	RF	1420.0		220.0	3.8	3.4		
	2800	OTTA	24	R	1420.0	1450	30.0	3.8	1.9		
	2800	OTTA	24P	R	1450.0		170.0	3.8			
	9400	HUAN		S	1524.7	1539.0	82.3	9.1	.9		1
	2800	OTTA	20	GRF	1617.0	1623	30.0	2.2	1.1		
	2800	OTTA	26	FAL	1740.0	1800	20.0	-3.8	-1.9		
	7000	SADP	1	S	1925.5	1926.3		9.0			18R
	2695	PENT	1	S	2202.0	2204	3.0	6.6	4.0	*	
	2695	PENT	29	PBI	2205.0	2205	29.0	3.6	1.8		
27	200	GORK	44	NS	0558.0E		329.0D		30		
	100	GORK	44	NS	0600.0E		327.0D		10		
	204	IIMI	43	NS	0700.0		300.0	50			
	127	TORN	44	NS	0710.0E	1151.6	450.0D	7100	44		V1
	260	ONDR	44	NS	0900.0E		316.0D	135	19		
	200	HIRA	44	NS	2218.0E	0705	620.0D	10	2		WR
	3750	TYKW	21	GRF	0058.0	0100	60.0	2	.5		
	9400	TYKW	20	GRF	0058.0	0059.3	60.0	5	2		
	5730	IRKU	45	C	0234.7	0235.8	2.3	5			L
	5730	IRKU			0234.7	0236.3		18			L
	5730	IRKU			0234.7	0236.1		14			L
	1000	TYKW	5	S	0235.0	0236.2	8.0	9	2.5		
	2000	TYKW	5	S	0235.0	0236.1	4.0	21	8		
	3750	TYKW	45	C	0235.0	0236.1	3.0	21	7		
	9400	TYKW	45	C	0235.0	0236.2	2.0	14	2		
	2695	MANI	3	S	0235.2	0235.8	2.9	17.1	5.7		
	1415	MANI	3	S	0235.2	0236.0	3.8	10.8	3.5		
	606	MANI	1	S	0235.2	0236.0	2.8	8.3	2.7		
	4995	MANI	3	S	0235.2	0236.1	2.2	24.8	8.2		
	9400	TYKW	30	PBI	0237.0		63.0	3	2		
	5730	IRKU	29	PBI	0237.0		20.0	4			L
	3750	TYKW	30	PBI	0238.0		62.0	4	2.5		
	2000	TYKW	30	PBI	0239.0		63.0	4	3		
	2000	TYKW	5	S	0316.0	0318.5	10.0	2	.7		
	3750	TYKW	45	C	0316.5	0318.3	8.0	5	1.5		
	4995	MANI	4	S/F	0339.3	0344.0	15.4	120.4	40.1		
	9400	TYKW	45	C	0340.0	0344.2	40.0	125	35		
	3750	TYKW	45	C	0340.0	0344.2	30.0	75	20		
	5730	IRKU	45	C	0340.0	0342.7	10.0	29			L
	5730	IRKU			0340.0	0345.7		46			L
	5730	IRKU			0340.0	0344.7		96			L
	8800	MANI	4	S/F	0341.8	0344.0	6.7	89.1	29.7		
	2695	MANI	4	S/F	0341.8	0344.2	6.7	52.8	17.6		
	2000	TYKW	45	C	0342.0	0344.0	28.0	23	12		
	17000	NOBE	45	C	0342.0	0344.0	5.0	51			L
	1415	MANI	1	S	0342.5	0344.1	4.7	5.7	19.1		
	1000	TYKW	45	C	0343.0	0344.1	4.0	3	1		
	17000	NOBE	20	GRF	0347.1	0352.7	126.0	17			L
	3750	TYKW	30	PBI	0410.0		180.0D	17	12 D		
	2000	TYKW	30	PBI	0410.0		180.0D	10	8 D		
	9400	TYKW	30	PBI	0440.0		180.0D	25	20 D		
	2000	TYKW	20	GRF	0520.0	0523	40.0	1.5	.8		
	3750	TYKW	5	S	0520.0	0522.2	30.0	12	3.5		
	9400	TYKW	5	S	0520.0	0522.2	40.0	17	6		
	9100	GORK	21	GRF	0611.2	0640.5	80.0	14	7		
	9100	GORK	1	S	0706.0	0708.2	46.0	13	4		
	6100	KISV	3	S	0916.5	0917.2	4.0	4			
	9100	GORK	20	GRF	1014.0		46.0E				
	7000	SADP	46	C	1141.8			853.0D			11R,ATTENUATION
	3000	POTS	45	C	1145.0	1151.2	38.0	1033 U			
	10715	DWIN	45	C	1145.0	1151	21.0	300 D			
	2650	DWIN	45	C	1145.0	1151	21.0	500 D			
	9500	POTS	45	C	1145.0	1151.2	39.0	1100			
	6100	KISV	45	C	1145.3		50.0	180 D			
	10400	BERN	47		1145.3	1151.2	40.0	1246.0			ONLY PAPER REC
	15000	KISV	45	C	1145.7		29.0	60 D			
	1470	POTS	45	C	1146.0	1151.4	32.0	206			
	930	BORD	46	C	1148.0	1156.4	18.0	542	30		
	536	ONDR	48	C	1148.5	1155.5	16.0	143	42		
	430	KRAK			1149.5	1204.0		75			
	430	KRAK	48	C	1149.5	1156.7	67.0	131	22		
	810	KRAK			1149.5	1156.2U		850 D			
	430	KRAK			1149.5	1249.0		66			
	810	KRAK	48	C	1149.5	1152.2	17.5	73	44 D		
	810	KRAK			1149.5	1202.5		39			
	234	POTS	45	C	1152.0	1209	133.0D	150			II+IV
	113	POTS	45	C	1152.0	1153	148.0D	700			II+IV
	33	UPIC	42	SER	1154.7	1204.2	14.1				
	29	UPIC	42	SER	1155.5	1158.2	12.5				
	536	ONDR	29	PBI	1204.5	1215.8	53.0	11	9		
	930	BORD	8	S	1252.7	1252.8	.3	50	2		
	930	BORD	41	F	1257.1	1257.3	.4	99	2		
	430	KRAK	29	PBI	1257.5	1336.5	56.5	58	3		

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

JANUARY 1980

DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	POLARIZATION OR REMARKS
				UT	UT	MINUTES	PEAK	MEAN		
27	2800	OTTA	23 GRF	1330.0	1350	330.0	15.0	7.5		
	536	ONDR	42 SER	1331.0	1346.3	30.0	32			
	7000	SAOP	45 C	1340.7	1346.3	13.0	29.0			32L
	9400	HUAN	S	1342.1	1349.8	32.6	12.3	5.6		1
	9500	POTS	29 PBI	1343.0	1347.4	19.0	19			
	3000	POTS	29 PBI	1343.0	1347.5	22.0D	18 U			
	1470	POTS	29 PBI	1343.0	1347.5	2.0	9			
	10400	BERN	21	1343.6	1347.5	20.0	12.0			ONLY PAPER REC
	2800	OTTA	1 S	1345.5	1347.7	3.0	7.6	5.6		
	9400	HUAN	S	1345.6	1347.3	2.7	10.5	11.8		1
	810	KRAK	8 S	1346.5	1346.5	.1	14			
	7000	SAOP	20 GRF	1452.8			6.0			0
	7000	SAOP	45 C	1813.7	1816.2	11.0	57.0			13R
	9400	HUAN	S	1814.8	1816.3	2.8	35.4	17.8		R
	2800	OTTA	3 S	1815.0	1816.3	4.0	23.6	7.8		
	9400	HUAN	PBI	1817.6	1817.6	19.6	10.8	6.0		0
	2800	OTTA	29 PBI	1819.0	1819	10.0	3.8	2.0		
	2800	OTTA	1 S	1910.0	1911	2.5	2.0	1.0		
	3750	TYKW	5 S	2332.0	2334.6	5.0	64	18		
	9400	TYKW	5 S	2332.0	2334.5	5.0	135	30		
	4995	MANI	4 S/F	2332.5	2334.8	4.9	73.4	24.5		
	2695	MANI	4 S/F	2333.3	2334.8	2.9	119.1	39.7		
	2000	TYKW	45 C	2333.5	2334.6	3.0	115	15		
	17000	NOBE	21 GRF	2333.9	2335.2	48.0	15			0
	8800	MANI	4 S/F	2333.9	2334.8	2.4	16.5	5.5		
	1415	MANI	1 S	2334.1	2334.8	3.3	5.8	1.9		
	17000	NOBE	1 S	2334.3	2334.6	.6	22			R
	2000	TYKW	29 PBI	2336.5		40.0	3	1.5		
	9400	TYKW	29 PBI	2337.0		40.0	13	5		
	3750	TYKW	29 PBI	2337.0		40.0	8	3		
28	200	GORK	44 NS	0700.0E		300.0D		10		
	127	TORN	44 NS	0710.0E	1232.5	450.0D	26			V1
	260	ONDR	44 NS	0807.0E		381.0D	101	12		
	9400	TYKW	45 C	0246.0	0301.8	24.0	35	12		
	3750	TYKW	45 C	0247.0	0304.6	23.0	27	10		
	2000	TYKW	45 C	0253.0	0304.6	17.0	14	6		
	5730	IRKU		0257.0U	0306.5		15			R
	5730	IRKU		0257.0U	0301.8		17			R
	5730	IRKU	45 C	0257.0U	0301.3	15.0	16			R
	5730	IRKU		0257.0U	0304.5		17			R
	1000	TYKW		0259.5	0301.8		27			
	1000	TYKW	45 C	0259.5	0303.4	10.5	27	8		
	1415	MANI	4 S/F	0259.5	0304.4	8.6	16.3	5.4		
	606	MANI	4 S/F	0303.0	0306.0	4.5	122.4	40.8		
	3750	TYKW	30 PBI	0310.0		100.0	6	2		
	9400	TYKW	30 PBI	0310.0		50.0	8	4		
	2000	TYKW	30 PBI	0310.0		100.0	5	1.5		
	1000	TYKW	30 PBI	0310.0		30.0	2	1		
	1000	TYKW	5 S	0320.0	0321.0	3.0	13	2		
	2000	TYKW	5 S	0320.5	0321.0	2.5	4.5	1		
	3750	TYKW	45 C	0333.0	0334.6	15.0	3	1		
	5730	IRKU	21 GRF	0334.0	0338.9	11.0	5			R
	9400	TYKW	5 S	0337.0	0338.4	4.0	4	1		
	9400	TYKW	5 S	0352.0	0352.7	3.0	9	3		
	5730	IRKU	1 S	0711.5	0712.2	1.0	5			
	6100	KISV	8 S	0715.5	0716	3.0	9			
	9100	GORK	1 S	0715.6	0716.1	2.0	13	6		
	9100	GORK	21 GRF	0731.0	0739.8	33.0	18	55		
	5730	IRKU	2 S	0732.3	0733.6	3.0	21			
	2695	MANI	3 S	0733.7	0738.5	6.9	38.1	12.7		
	4995	MANI	3 S	0733.7	0738.3	6.8	58.8	19.6		
	2950	GORK	20 GRF	0735.2	0738.6	105.0	14	30		
	3100	CRIM	3 S	0736.0	0738.0	3.0	17	5		
	3750	TYKW	5 S	0737.0U	0738.2	3.0U	20	6 U		
	6100	KISV	8 S	0737.0	0738	2.0	25			
	9100	GORK	1 S	0738.0	0738.5	1.8	28	14		
	950	GORK	1 S	0738.2	0739.0	18.0	17	8		
	9100	GORK	21 GRF	0856.5	0913.0	285.0	10			
	9500	POTS	4 S/F	0905.0	0905.2	3.0	20			
	6100	KISV	8 S	0905.0	0905.5	10.0	8			
	10400	BERN	1	0905.0	0905.8	2.0	11.0			ONLY PAPER REC
	6100	KISV		0905.0	0913		5			
	9100	GORK	2 S/F	0905.2	0906.0	15.0	16	8		
	430	KRAK	8 S	0955.8	0955.8	.1	9			
	536	ONDR	45 C	0955.8	0955.8	1.5	25			
	430	KRAK	1 S	1054.8	1055.0	.5	7			
	7000	SAOP	20 GRF	1138.0	1143.0		10.0			23R,TWO BURSTS
	930	BORD	41 F	1154.0	1154.2	.7	122	2		
	3000	POTS	3 S	1155.9	1156.5	1.1	9.3			
	9500	POTS	1 S	1156.0	1156.5	2.0	6.1			
	6100	KISV	3 S	1156.0	1156.5	2.0	4			
	430	KRAK	1 S	1330.5	1330.7	.3	7			
	7000	SAOP	45 C	1332.5	1335.8	22.6	28.0			0,TWO BURSTS
	9500	POTS	4 S/F	1333.0	1336	5.0	12			

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

JANUARY 1980

DAY OF MONTH	FREQUENCY	STATION	TYPE		STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	POLARIZATION OR REMARKS
					UT	UT	MINUTES	PEAK	MEAN		
28	9400	HUAN		S	1333.2	1335.5	4.6	11.8	7.0		Ø
	3800	POTS	3	S	1335.0	1336	3.0	8.3			
	2800	OTTA	1	S	1335.0	1336	2.0	4.0	2.0		
	536	ONDR	0	S	1412.7	1412.7	.3	63			
	7000	SAOP	3	S	1440.0	1441.5	4.6	17.0			Ø
	10400	BERN	1		1441.0	1441.3	4.0	12.0			ONLY PAPER REC
	2800	OTTA	1	S	1537.5	1539	2.5	4.4	3.0		
	7000	SAOP	45	C	1543.0	1547.6	7.0	17.0			Ø,TWO BURSTS
	7000	SAOP	40	F	1613.0						
	9400	HUAN		S	1849.0	1849.8	2.7	25.6	13.1		Ø
	7000	SAOP	4	S/F	1849.2	1849.8	4.8	28.0			11R
	2800	OTTA	20	GRF	1850.0	1907	35.0	2.4	1.4		
	9400	HUAN		PBI	1851.7	1851.7	4.4	9.8	5.9		Ø
	2800	OTTA	1	S	1932.0	1933.2	1.0	3.0	1.5		
	2800	OTTA	20	GRF	2027.0	2035	27.0	3.0	1.5		
	2695	PENT	21	GRF	2100.0	2120	52.0	6.0	3.0		
	9400	HUAN		S	2110.4	2120.5	15.1	27.5	9.8		R
	2800	OTTA	4	S/F	2114.0	2117	6.0	21.4	7.1		
	9400	HUAN		S	2115.6	2116.8	3.6	15.7	13.5		R
	2695	PENT	1	S	2228.0	2229.2	2.0	4.2	2.1		
	2695	PENT	1	S	2249.5	2253	7.0	4.6	2.6		
	3750	TYKW	5	S	2305.0	2315	20.0	3	1		
	9400	TYKW	5	S	2305.0	2315	25.0	6	3		
	100	HIRA	46	C	2314.7	2315.4	2.2	430	140		
29	260	ONDR	44	NS	0822.0E		360.0D	15			
	9400	TYKW	45	C	0349.0	0352.0	15.0	21	6		
	3750	TYKW	45	C	0351.0	0353.1	13.0	9	3		
	9400	TYKW	30	PBI	0404.0		40.0	4	2		
	3750	TYKW	30	PBI	0404.0		50.0	3	1.5		
	2800	TYKW	5	S	0412.0	0412.5	7.0	11	2.5		
	3750	TYKW	5	S	0412.0	0412.4	8.0	20	4		
	9400	TYKW	5	S	0412.0	0412.3	1.0	10	2.5		
	3750	TYKW	45	C	0425.0	0428.6	11.0	4	1		
	9400	TYKW	5	S	0438.5	0438.8	1.0	4	1		
	3750	TYKW	5	S	0438.5	0438.8	3.0	10	2.5		
	1000	TYKW	5	S	0438.6	0438.8	.4	75 U	20 U		
	2800	TYKW	5	S	0438.7	0438.8	1.5	3	1		
	9400	TYKW	5	S	0510.0	0510.2	1.0	7	2		
	9100	GORK	1	S	0618.9	0621.1	5.0	8	4		
	2950	GORK	20	GRF	0637.4	0642.2	386.0	50	25		
	9100	GORK	22	GRF	0639.0	0643.4	15.0	15	35		
	9400	TYKW	45	C	0642.0	0643.4	5.0	13	3		
	9100	GORK	20	GRF	0703.0	0704.6	139.0	16	45		
	6100	KISV	45	C	0703.5	0704.7	10.0	6			
	6100	KISV			0703.5	0707		5			
	9400	TYKW	5	S	0704.0	0704.7	10.0	15	4		
	9100	GORK	1	S	0838.0	0839.3	63.0	7	3		
	3100	CRIM	21	GRF	0919.0	0954.0	211.0D	24			
	6100	KISV			0923.0	0944.5		17			
	6100	KISV	45	C	0923.0	0941	22.0	17			
	2950	GORK	20	GRF	0923.1	0949.3	165.0	14			
	9100	GORK	20	GRF	0928.8	0951.0	100.0E	26			
	10400	BERN	20		0941.0	0951.0	43.0	15.0			ONLY PAPER REC
	6100	KISV	29	PBI	0945.0	0945	20.0	14			
	650	GORK	2	S/F	1045.4	1046.7	15.0	5	25		
	950	GORK	2	S/F	1045.5	1046.7	16.0	10			
	3800	POTS	8	S	1207.8	1208.2	.9	2.3			
	2650	DWIN	8	S	1208.0	1151		100			
	1470	POTS	1	S	1208.0	1208.5	1.0	1.9			
	3100	CRIM	1	S	1208.0	1208.5	1.0	18	5		
	7000	SAOP	40	F	1211.0						Ø
	7000	SAOP	20	GRF	1316.7	1324.5	16.6	19.0			Ø,TWO BURSTS
	7000	SAOP	3	S	1424.4	1424.9		12.0			Ø
	2800	OTTA	8	S	1424.9	1425	.4	3.2	1.6		
	9400	HUAN		S	1530.1	1530.4	3.5	23.0	12.2		R
	10400	BERN	1		1530.2	1530.5	2.5	13.0			ONLY PAPER REC
	7000	SAOP	3	S	1530.2	1530.6	2.0	17.0			19R
	2800	OTTA	1	S	1557.0	1558.5	3.0	8.0	2.7		
	7000	SAOP	3	S	1642.0	1643.2	3.2	17.0			Ø
	9400	HUAN		S	1642.3	1642.9	2.3	15.9	7.3		Ø
	9400	HUAN		S	1729.7	1747.4	33.6	17.7	8.8		R
	7000	SAOP	46	C	1731.3	1737.3	24.0	83.0			4R
	2800	OTTA	46F	C	1732.0	1737.5	40.0	45.4	17.4		
	9400	HUAN		S	1736.7	1737.3	5.0	83.1	29.9		R
	9400	HUAN		S	1736.7	1737.3	5.0	83.1	29.9		R
	9400	HUAN		S	1827.6	1841.5	29.0	8.8	3.7		R
	2695	PENT	20	GRF	2120.0	2130	22.0	2.2	1.6		
	9400	HUAN		S	2128.7	2129.8	2.9	23.0	15.1		1
	9400	HUAN		S	2201.6	2203.0	2.5	44.2	19.7		R
	2695	PENT	1	S	2202.0	2203	3.0	3.4	1.7		
30	9400	TYKW	5	S	0405.0	0405.3	3.0	5	2		
	9400	TYKW	5	S	0619.5	0620.5	4.0	5	1		
	3750	TYKW	5	S	0620.0	0620.5	5.0	3	1		

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

JANUARY 1980

DAY OF MONTH	FREQUENCY	STATION	TYPE		STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	POLARIZATION OR REMARKS
					UT	UT	MINUTES	PEAK	MEAN		
30	1000	TYKW	45	C	0620.0	0620.5	1.0	22	5		
	260	ONDR	42	SER	0821.0E	0843.0	31.0D	74			
	3100	CRIM	20	GRF	0844.0	1054.0		12	4		
	260	ONDR	42	SER	1100.0	1106.3	52.0	22			
	7000	SAOP	3	S	1243.0	1244.6		11.0			13R
	10400	BERN	1		1404.1	1404.5	2.0	12.0			ONLY PAPER REC
	260	ONDR	45	C	1405.0	1406.0	4.0	22	2		
	930	BORD	42	SER	1435.5	1436.1	2.0	158	2		
	2800	OTTA	20	GRF	1537.0	1543	15.0	3.2	1.6		
	9400	HUAN		S	1540.2	1546.2	17.4	5.0	1.9		0
	7000	SAOP	40	F	1608.0		54.0				0
	9400	HUAN		S	1641.0	1655.3	25.4	13.4	5.8		0
	2800	OTTA	3	S	1642.5	1644	8.0	41.0	9.0		
	2800	OTTA	21	GRF	1720.0	2000	320.0	14.0	7.0		
	7000	SAOP	20	GRF	1728.0	1736.9	54.0	30.0			39R
	9400	HUAN		S	1730.0	1737.5	84.1	10.4	11.9		R
	2800	OTTA	3	S	1733.0	1737	10.0	34.2	17.1		
	2800	OTTA	29	PBI	1743.0	1743	70.0	16.8	8.2		
	9400	HUAN		S	2023.2	2023.7	5.5	11.7	6.9		0
	9400	HUAN		S	2206.5	2207.1	2.1	26.8	15.3		R
	700	SYDN	40	F	2254.6	2255.0	2.3				
31	3750	TYKW	21	GRF	0050.0	0130	180.0	5	2		
	3750	TYKW	5	S	0102.0	0105.2	20.0	7	1.5		
	2000	TYKW	45	C	0104.0	0105.1	2.0	10	2.5		
	9400	TYKW	21	GRF	0120.0	0130	150.0	4	2		
	3750	TYKW	45	C	0134.0	0135.0	12.0	8	1.5		
	2000	TYKW	5	S	0134.5	0135	2.0	1.5	.5		
	700	SYDN	41	F	0314.5	0316.8	3.7				
	2000	TYKW	5	S	0316.5	0316.7	2.0	2.5	.5		
	1000	TYKW	5	S	0316.5	0316.7	1.0	9	2		
	3750	TYKW	5	S	0316.5	0316.8	1.0	2.5	.7		
	9400	TYKW	5	S	0329.5	0330.0	2.0	9	2		
	3750	TYKW	21	GRF	0435.0	0500	80.0	9	5		
	2000	TYKW	20	GRF	0435.0	0453	80.0	3.5	2		
	9400	TYKW	20	GRF	0438.0	0500	90.0	11	6		
	3100	CRIM	25	R	0737.0	1004.0		18			
	2950	GORK	21	GRF	0800.0	0817.0	250.0E				
	15000	KISV	21	GRF	0807.0	0809	23.0	9			
	9100	GORK	20	GRF	0807.3	0809.6	39.0	10	4		
	6100	KISV	21	GRF	0808.0	0809	52.0	8			
	234	POTS	8	S	0816.7	0816.7	.1	100	8		III
	536	ONDR	42	SER	0950.0	1017	120.0	91			
	930	BORD	8	S	0950.6	0950.7	.2	23	1		
	930	BORD	8	S	1017.1	1017.1	.2	104	1		
	9100	GORK	20	GRF	1033.0	1044.9	25.0	9	25		
	6100	KISV	8	S	1044.0	1044.7	3.0	8			
	260	ONDR	8	S	1106.2	1106.2	.3	202			
	6100	KISV	45	C	1107.0	1111	11.0	12			
	9100	GORK	20	GRF	1107.9	1108.5	105.0	7	2		
	9500	POTS	20	GRF	1110.0	1114	28.0	4.5			
	7000	SAOP	45	C	1110.0	1111.4	5.4	16.0			20R
	3100	CRIM	3	S	1110.5	1113.0	3.0	28	9		
	3000	POTS	4	S/F	1110.7	1111.4	2.3	25	U		
	1470	POTS	4	S/F	1110.7	1111.5	5.3	17			
	930	BORD	46	C	1111.0	1112.1	3.0	95	4		
	2950	GORK	3	S	1111.2	1111.8	20.0	25			
	950	GORK	4	S/F	1117.2	1119.2	38.0	29			
	6100	KISV	3	S	1125.0	1126	3.0	4			
	6100	KISV	24	R	1135.0	1149	14.0	4			
	15000	KISV	24	R	1140.0	1149	9.0	14			
	9100	GORK	21	GRF	1146.4	1152.0	23.0E	16			
	3000	POTS	4	S/F	1148.7	1150.0	4.3	45	U		
	9500	POTS	4	S/F	1148.7	1150.0	2.3	39			
	1470	POTS	4	S/F	1149.0	1151.2	9.0	32			
	930	BORD	46	C	1149.0	1149.7	4.0	203	11		
	2650	DWIN	2	S/F	1149.0	1150	5.0	50	35		
	7000	SAOP	45	C	1149.0	1150.2	25.2	86.0			8R
	6100	KISV			1149.0	1151		37			
	3100	CRIM	3	S	1149.0	1152	U 4.0	23	7		
	6100	KISV	45	C	1149.0	1150.5	1.5D	67			
	15000	KISV	8	S	1149.0	1150.3	2.0	15			
	10400	BERN	3		1149.2	1150.3	12.0	37.0			ONLY PAPER REC
	9400	HUAN		S	1149.4	1150.2	2.4	40.9	23.3		R
	2950	GORK	45	C	1149.4	1150.6	30.0	45			
	2950	GORK			1149.4	1151.4		33			
	810	KRAK	4	S/F	1149.5	1150.5	4.7	76	12		
	9100	GORK	4	S/F	1149.7	1150.6	19.0	55			
	950	GORK	4	S/F	1149.8	1150.2	9.0	46			
	15000	KISV	20	GRF	1150.5	1155	10.0	10			
	9400	HUAN		PBI	1151.8	1151.8	18.1	10.7	4.6		0
	260	ONDR	8	S	1200.8	1200.8	.2	19			
	260	ONDR	42	SER	1255.3	1255.3	85.0	61			
	7000	SAOP	45	C	1332.6	1334.7	7.0	23.0			20L
	2800	OTTA	21	GRF	1340.0	1545	320.0	18.0			

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

JANUARY 1980

DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	POLARIZATION OR REMARKS
				UT	UT	MINUTES	PEAK	MEAN		
31	930	BORD	B S	1357.2	1357.2	.1	49	1		
	7000	SAOP	40 F	1528.0		16.0				0
	7000	SAOP	40 F	1556.0		6.0				0
	7000	SAOP	45 C	1629.2	1630.1	3.0	35.0			0
	2800	OTTA	2 S/F	1629.5	1631.5	3.0	3.2	1.6		
	2800	OTTA	1 S	2027.5	2028.5	1.5	4.6	2.3		

Reports are received routinely from the following observatories:

ARCE = Arcetri
BERN = Berne
BORD = Bordeaux
CRIM = Crimea
DWIN = Dwingeloo
GORK = Gorky
HARS = Harestua
HIRA = Hiraiso
HUAN = Huancayo
IRKU = Irkutsk
IZMI = IZMIRAN
KISV = Kislovodsk
KRAK = Krakow
MANI = Manila
NAGO = Nagoya
NOBE = Nobeyama
ONDR = Ondrejov
OTTA = Ottawa
PENT = Penticton
POTS = Potsdam
SOAP = Sao Paulo
SGMR = Sagamore Hill
SYDN = Sydney
TORN = Torun
TYKW = Toyokawa
TRST = Trieste
UPIC = Upice
VORO = Voroshilov

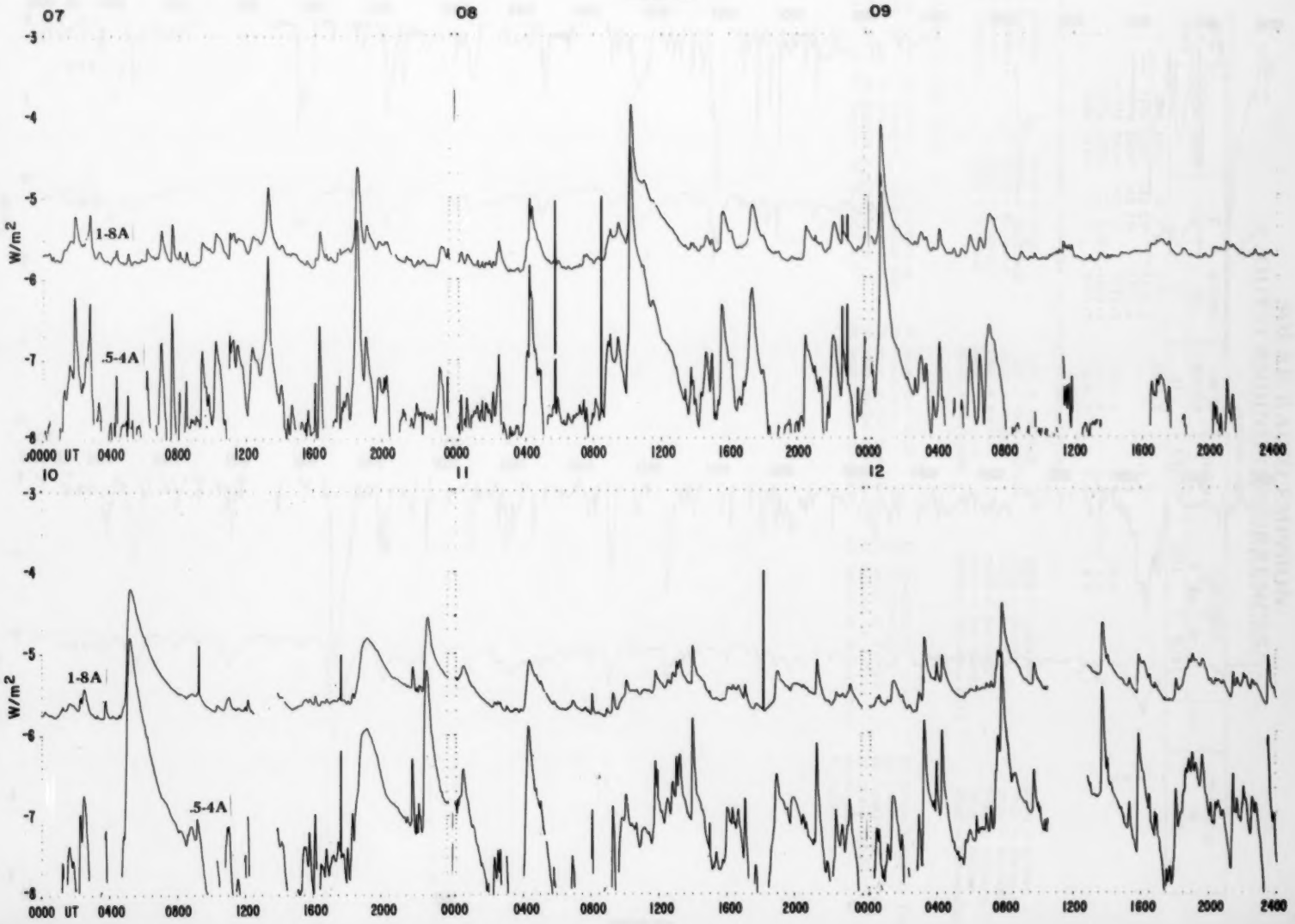
Explanation of Type Code:

1 Simple 1
2 Simple 1F
3 Simple 2
4 Simple 2F
5 Simple
6 Minor
7 Minor +
8 Spike
20 Simple 3
21 Simple 3A
22 Simple 3F
23 Simple 3AF
24 Rise
25 Rise A
26 Fall
27 Rise and Fall
28 Precursor
29 Post Burst Increase
30 Post Burst Increase A
31 Post Burst Decrease
32 Absorption
40 Fluctuation
41 Group of Bursts
42 Series of Bursts
43 Onset of Noise Storm
44 Noise Storm in Progress
45 Complex
46 Complex F
47 Great Burst
48 Major
49 Major +

SMS-GOES X-RAYS
JANUARY 1980
01
02
03
04
05
06
W/m²
1-8A
.5-4A
0000 UT
0400
0800
1200
1600
2000
2400

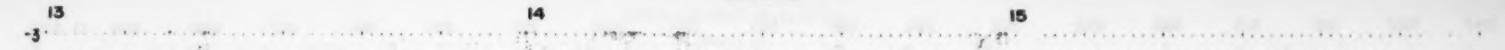
SMS-GOES X-RAYS

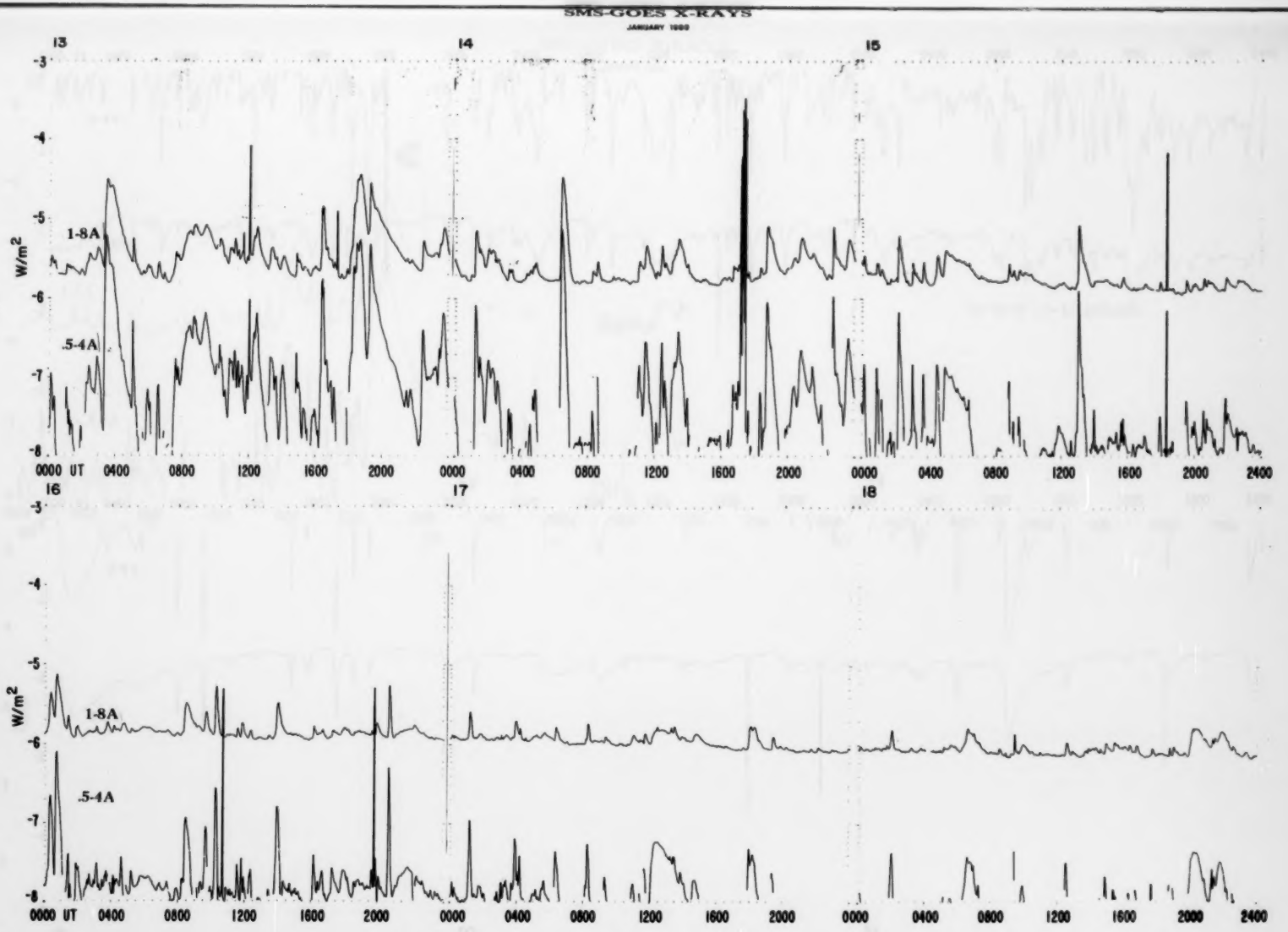
JANUARY 1980



SMS-GOES X-RAYS

JANUARY 1980

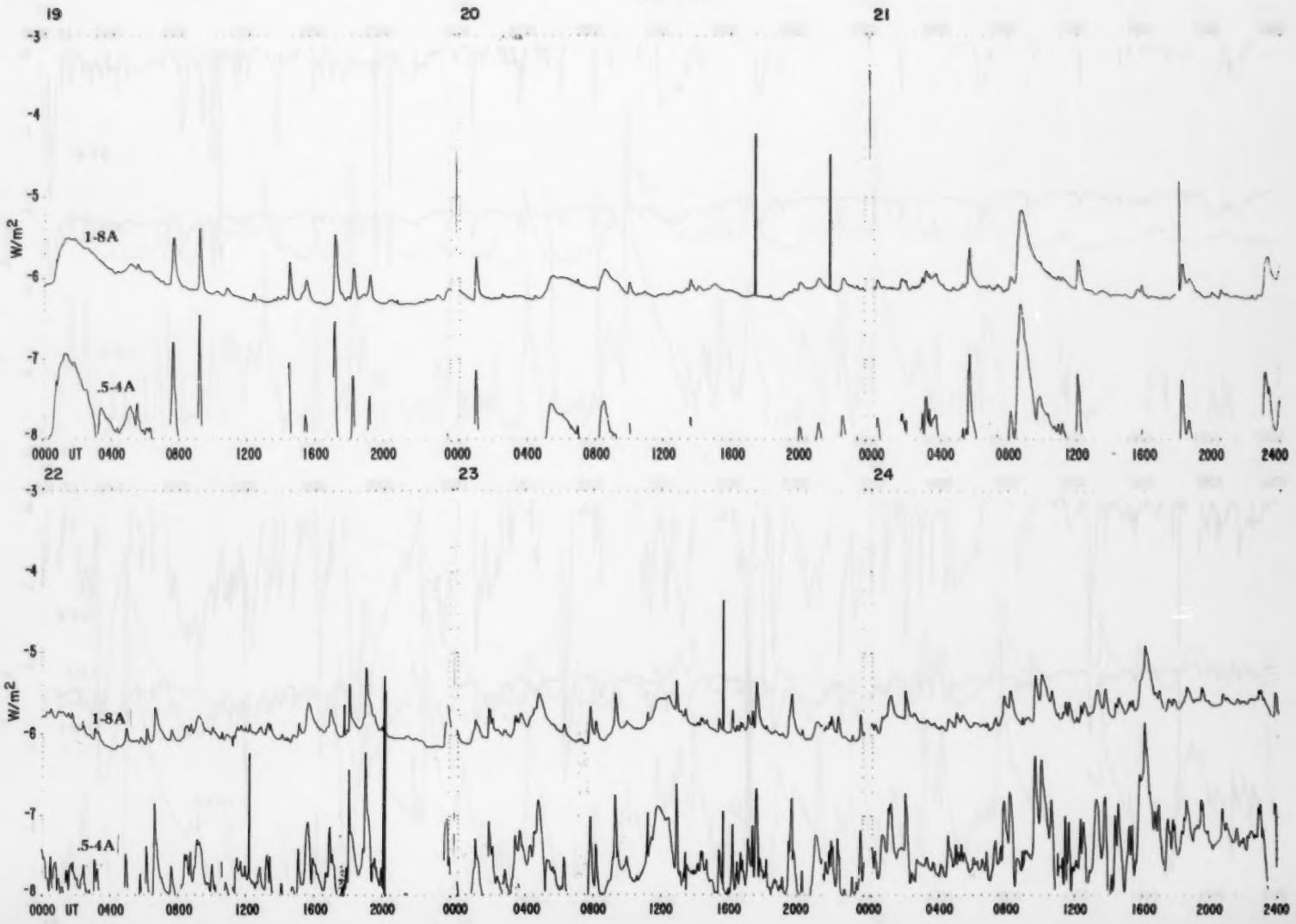



SMS-GOES X-RAYS
JANUARY 1980
13
14
15
16
17
18
1-8A
.5-4A
W/m2
-3
-4
-5
-6
-7
-8
0000 UT
0400
0800
1200
1600
2000
0000
0400
0800
1200
1600
2000
0000
0400
0800
1200
1600
2000
2400

29
Jan 80

SMS-GOES X-RAYS

JANUARY 1980

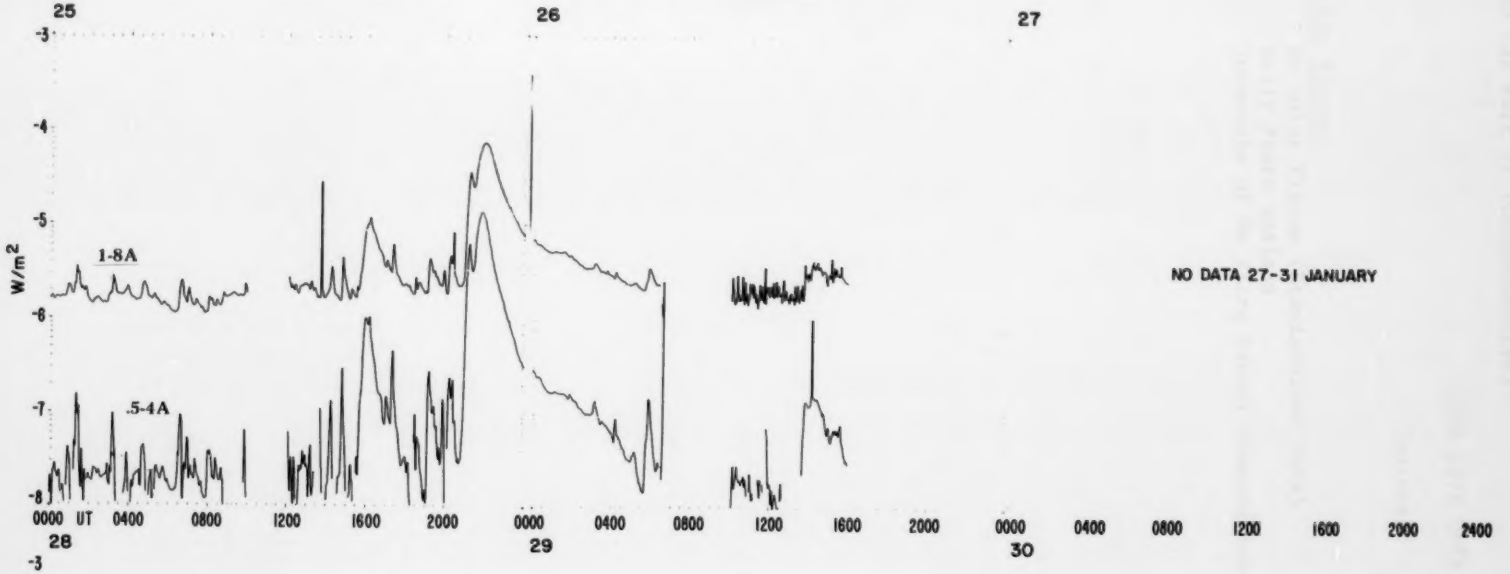


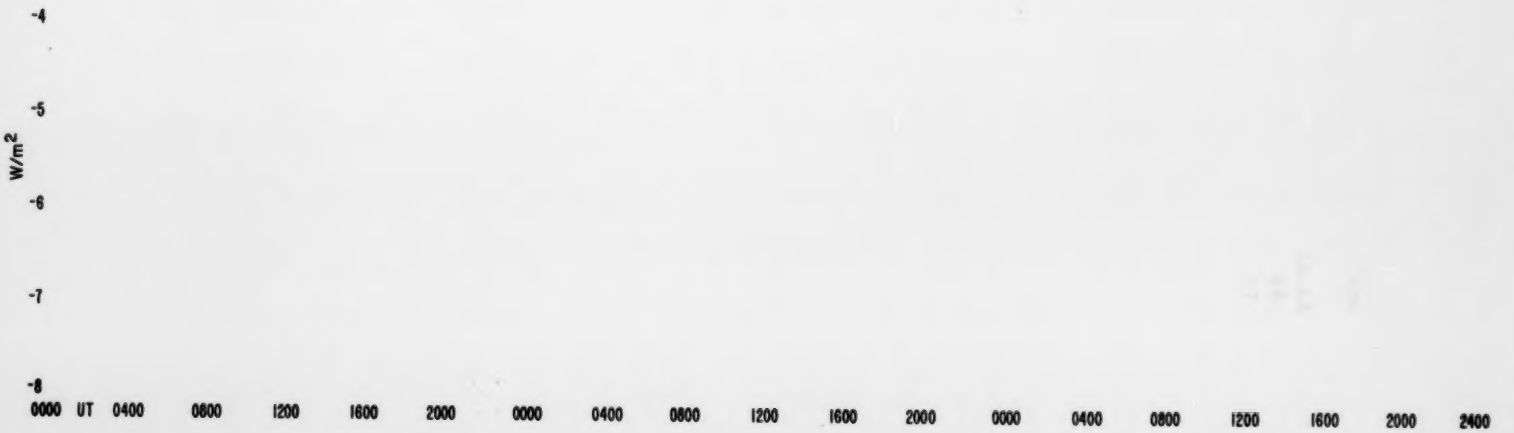
SMS-GOES X-RAYS

JANUARY 1980

SMS-GOES X-RAYS

JANUARY 1980





31 Jan 80

SGD 431 Part II (Comprehensive)

JUNE 1979 DATA

Contents

	Page
Solar Flares	
Hα Solar Flares (Standardized Data)	34-66
Daily Flare Indices	66
Intervals of No Flare Patrol Observation	67

Hα SOLAR FLARES

JUNE 1979

OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IMPOR-TANCE	OBS.		MEASUREMENTS			REMARKS	
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY	MIN.		CONG	TYPE	TIME UT	MEAS. AREA Mil of Disk	CORR AREA Sq Deg		
4 CULG	01	0852	0855	0103	N21	E73	.963	16051	6.5	11	-N		C	0855	38			ZX
5 CULG	01	0853	0858	0110	S20	E85	.996	16052	7.4	17	-F		C	0858	28		T	ZX
6 CULG	01	0110	0117	0129	N23	W63	.911	16031	27.3	19	-F		C	0117	58			ZX
7 CULG	01	0128	0131	0140	S32	W19	.569	16048	30.6	12	-F		C	0131	20	.3		ZX
8 CULG	01	0236	0244	0315	N26	W23	.569	16041	30.4	39	-N		C	0244	110	1.4		ZX
GRF79009	01	0516+2	0602+4	0625	N15	E70	.945	16051	6.5	27	1N				110		DIJ	
ABST	01	0556	0602	0625	N17	E70	.946	16051	6.5	27	1N		C	0602	131		DJ	
YLNN	01	0600	0606	0627	N14	E70	.944	16051	6.5	27	1N		C		142			
KIEV	01	0602E		06150	N14	E70	.980	16051	7.1	130	1N		P	0602	109		DI	
ATHN	01	0605E	0605	06140	N14	E68	.933	16051	6.4	90	-N	1		0605	82	2.8		
CATA	01	0605E	0605	0620	N16	E69	.948	16051	6.4	150	1B	2	P	0605	84			
10 ABST	01	0703	0704	0711	N23	E70	.951	16051	6.5	8	?N		C	0704	87		DV	ZX
	IMP.1 NO : KIEV CATA																	
11 ABST	01	0720	0721	0723	N17	E72	.956	16051	6.7	3	?N		C	0721	87		DJV	ZX
	IMP.1 NO : KIEV MITK MONT CATA KANZ																	
12 KANZ	01	0725	0725	0733	N15	E38	.652	16046	4.2	8	-N	3					D	ZX
GRF79013	01	0808+3	0810+3	0814	N20	E69	.943	16051	6.5	6	-N				80		J	
MONT	01	0808	0810	0812	N17	E69	.941	16051	6.5	4	-N		C	0810	88		E	
ABST	01	0811	0813	0816	N23	E70	.951	16051	6.6	5	1N		C	0813	87		DJ	
14 ABST	01	0849	0852	0906	N17	E70	.946	16051	6.6	17	?N		C	0852	87		DJ	ZX
	IMP.1 NO : KIEV MONT CATA KANZ																	
15 MONT	01	1006	1009	1012	N17	E68	.935	16051	6.5	4	-F		C	1009	58		E	ZX
16 KHAR	01	1223E		12300	N17	E70	.946	16051	6.8	70	-F		P				D	ZX
17 KHAR	01	1305E		13110	N19	E66	.924	16051	6.5	60	-F		P				E	ZX
18 KHAR	01	1315E		13180	N21	E68	.938	16051	6.7	30	-F		P				D	ZX
	01	1353	140E	NO FLARE PATROL														
19 KHAR	01	1411E	1419	14290	N22	E63	.903	16051	6.3	180	-F		P				D	ZX
20 BIGB	01	1431	1432	1436	S17	E75	.969	16052	7.2	5	-N	3	C	1432	38			ZX
21 NCMA	01	1441	1450	15150	N15	E33	.591	16046	4.1	340	-F		C	1450	40	.5	E	ZX
22 NCMA	01	1455	1508	15300	N15	E65	.914	16051	6.5	350	-N		C	1508	50	1.2	E	ZX
GRF79023	01	1547+1	1550+0	1601	S20	E75	.969	16052	7.3	14	-N				50		E	
BIGB	01	1547	1550	1601	S19	E75	.969	16052	7.3	14	-N	3	C	1550	60			
NCMA	01	1548	1550	1600	S21	E76	.973	16052	7.4	12	1F		C	1550	50	2.4	E	
GRF79024	01	1602+1	1604+2	1626	N16	E64	.903	16051	6.5	24	-B				80	1.9	E	
NCMA	01	1602	1606	16300	N15	E65	.914	16051	6.5	280	-N		C	1606	60	1.5	E	
BIGB	01	1603	1604	1621	N18	E64	.911	16051	6.5	18	1B	3	C	1604	100	2.4		
GRF79025	01	1644+6	1651+7 1715	1744	S25	E70	.943	16052	6.9	60	1B				80		E	
NCMA	01	1644		16510	S27	E66	.930	16052	6.6	70	1N		P	1651	70	2.1	E	
BIGB	01	1645	1651	1734	S25	E70	.949	16052	6.9	49	-B	3	C	1651	50			
PALE	01	1650	1658	1714	S21	E70	.946	16052	7.0	24	1B	3	C		120		DE	
PALE	01	1715	1715	1754	S21	E70	.946	16052	7.0	39	-N	3	C		31		F	
GRF79026	01	1647+7	1657+1	1718	N15	E31	.563	16046	4.0	31	-N				100	1.2	F	
BIGB	01	1647	1658	1715	N16	E32	.584	16046	4.1	28	-N	3	C	1658	80	1.0		
PALE	01	1654	1657	1721	N14	E30	.547	16046	4.0	27	-B	3	C		125		F	
GRF79027	01	1651>9	1716 1754	1803	N18	E64	.911	16051	6.5	72	-B						F	
PALE	01	1651	1716	1805	N19	E64	.912	16051	6.5	74	-B	3	C		24		F	
WIGB	01	1716	1726	1749	N16	E60	.862	16051	6.2	33	-B	3	C	1726	30	.6		
BIGB	01	1751	1754	1800	N18	E66	.936	16051	6.8	9	-N	3	C	1754	80			

Hα SOLAR FLARES

JUNE 1979

OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IMPOR-TANCE	OBS.		MEASUREMENTS			REMARKS	
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mill of Disk	CORR AREA Sq. Deg.		
GRF75028	01	1815+2	1819+1	1838	N19	E64	.912	16051	6.6	23	-B				35	.8		
BIGB	01	1815	1820	1831	N17	E66	.923	16051	6.7	16	-B	3	C	1820	20			
PALE	01	1817	1819	1900	N19	E64	.912	16051	6.6	43	-B	3	C		50		F	
MCMA	01	1835E		1838D	N20	E60	.865	16051	6.3	3D	-F		P	1835	15	.4	D	
29 MCMA	01	1931E		1931D	N18	E60	.882	16051	6.3		-N		P	1931	30	.6	E	ZX
30 PALE	01	1945	1945	1951	N14	E28	.521	16046	3.9	6	-N	3	C		49		F	ZX
31 PALE	01	1949	1949	2104D	N19	E63	.905	16051	6.6	75D	-N	3	C		58		F	ZX
32 HOLL	01	2113	2116	2120	N21	E59	.879	16051	6.3	7	-N	2	C		39			ZX
33 CULG	01	2125E	2131U	2137	N20	W90	1.000	16031	26.1	12D	-F		P	2131	50			ZX
GRF75034	01	2326+9	2343+1	0018	N11	E63	.931	16056	7.1	52	-N				35			
CULG	01	2326	2343	0018	N11	E64	.937	16056	7.2	52	-N		C	2343	50			
BIGB	01	2342	2344	2344E	N12	E67	.925	16056	7.0	2D	-N	2	P	2344	20			
35 CULG	01	2355	2356	0020	N09	W90	1.000	0	26.2	25	-F		C	2356	20			ZX
36 CULG	02	0057E	0104	0131	N25	E60	.894	16051	6.5	34D	-F		P	0104	50	1.2	T	ZX
GRF75037	02	0158+5	0200+6	0216	N25	E59	.887	16051	6.5	18	-N				80	1.7	DH	
CULG	02	0158	0208	0222	N25	E60	.894	16051	6.6	24	-F		C	0200	60	1.4	T	
VORO	02	0203	0206	0209	N26	E58	.862	16051	6.4	6	1N		C	0206	99	2.1	DH	
38 CULG	02	0226	0228	0242	N22	E55	.849	16051	6.2	16	-F		C	0228	20	.4	T	ZX
GRF75039	02	0249>9	0323+1	0334	N18	E54	.831	16051	6.2	45	1F						E	
CULG	02	0249	0324	0340	N14	E56	.842	16051	6.3	51	1N		C	0324	100	2.1	T	
TACH	02	0320	0323	0328	N22	E52	.824	16051	6.0	8	1F		V	0323	260	4.9	E	
GRF75040	02	0353	0401	0408	N21	E53	.830	16051	6.1	15	-N				70	1.2	D	
CULG	02	0353	0401	0411	N23	E55	.852	16051	6.3	18	-N		C	0401	60	1.1	T	
TACH	02	0400E		0404	N20	E52	.818	16051	6.1	4D	-N		V	0400	88	1.7	D	
GRF75041	02	0458+3	0502+1	0513	N25	E59	.887	16051	6.6	15	-N				70	1.5	DV	
CULG	02	0458	0503	0516	N25	E59	.887	16051	6.6	18	-N		C	0503	50	1.0	T	
ABST	02	0501	0502	0510	N26	E59	.889	16051	6.6	9	-N		C	0502	87	1.9	DV	
42 CULG	02	0513	0515	0523	N09	E66	.916	16056	7.2	10	-N		C	0515	30			ZX
43 CULG	02	0521	0530	0600	N22	E33	.633	16046	4.7	39	-N		C	0530	140	1.9		ZX
44 CULG	02	0538	0552	0607	S19	E68	.934	16052	7.3	29	-N		C	0552	30		T	ZX
45 ABST	02	0707	0710	0715	N18	E64	.910	16051	7.1	8	?F		C	0710	87		EJ	ZX
	IMP.1 NO I CATA																	
GRF75046	02	0820E	0824	0828	N21	E52	.821	16051	6.2	8	-N						E	
ISTA	02	0820E		0825	N23	E52	.827	16051	6.2	5D	-B		V				E	
ATHN	02	0821E	0824	0831	N19	E52	.813	16051	6.2	10D	-N	1		0824	49	.7		
GRF75047	02	0852+1	0854+4	0907	S17	E65	.913	16052	7.2	15	-N				70		DJ	
ABST	02	0852	0854	0904	S16	E65	.913	16052	7.2	12	1N		C	0854	87		DJ	
KHAR	02	0852E	0855	0855D	S19	E66	.922	16052	7.3	3D	-F		P				D	
KANZ	02	0852	0858	0910	S18	E65	.914	16052	7.2	18	-N	2					D	
HONT	02	0853	0856	0908	S18	E66	.921	16052	7.3	15	-N		C	0856	70		D	
ATHN	02	0853	0856	0906	S18	E60	.869	16052	6.9	13	-B	3	C		48		DE	
GRF75048	02	0907+3	0908+3	0924	S23	E67	.932	16052	7.4	17	-N				60		DHLV	
ABST	02	0907	0908	0920	S24	E65	.921	16052	7.3	13	1N	*	C	0908	87		DV	
HONT	02	0909	0911	0921	S24	E68	.938	16052	7.5	12	-N	*	C	0911	50		DH	
ZURI	02	0909	0909	0913	S23	E67	.932	16052	7.4	4	-F	*	C	0909	60			
CATA	02	0910	0910	0930	S23	E67	.932	16052	7.4	20	-B	*	C	0910	56			
KANZ	02	0910	0910	0926	S23	E67	.932	16052	7.4	16	-N	*					DL	
KHAR	02	0913E	0913	0920D	S24	E68	.938	16052	7.5	7D	-F	*	P				D	
KHAR	02	0933E	0933	0943D	S19	E72	.955	16052	7.8	10D	-F		P					
GRF75049	02	0949+4	0953+1	1004	N16	E57	.854	16051	6.7	15	-F						E	
HONT	02	0949	0954	1004	N15	E59	.869	16051	6.8	15	-F		C	0954	50		E	
KANZ	02	0950	0954	1009	N16	E57	.854	16051	6.7	19	-F	2						
WEND	02	0950E		1004	N16	E56	.845	16051	6.6	14D	-N		C				D	
KHAR	02	0953	0953	1000	N16	E58	.862	16051	6.8	7	-F		P				E	

Hα SOLAR FLARES

JUNE 1979

OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS	
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX WEB. DIST	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY	MIN.		CONF	TYPE	TIME UT	MEAS. AREA Millionths of Disk	CORR. AREA Sq. Deg.		
GRF75050	02	1032+5	1035+4	1112	N16	E22	.459	16046	4.1	40	-F						E	
ZURI	02	1032	1037	10570	N16	E23	.471	16046	4.2	250	-F		P	1037	140	1.7		
CATA	02	1035	1035	10580	N15	E21	.438	16046	4.0	150	-N	2	P	1035	56	.6		
KHAR	02	1036E	1039	1112C	N16	E23	.471	16046	4.2	360	-F		P				E	
KANZ	02	1037	1037	1112	N16	E21	.447	16046	4.0	35	-F	1						
GRF75051	02	1037+5	1042+3	1052	N13	E61	.783	16051	7.0	15	-F							
ZURI	02	1037	1043	1051	N14	E60	.875	16051	6.9	14	1F		C	1043	120	2.6		
KANZ	02	1041	1045	1054	N13	E61	.883	16051	7.0	13	-N	2						
KHAR	02	1042	1042	1052	N13	E63	.893	16051	7.2	10	-F		P					
			1128															
52 KHAR	02	1125E	1128	11350	N21	E49	.793	16051	6.2	180	-F		P				D	ZX
52 KHAR	02	1125E	1125	11350	N16	E58	.662	16051	6.8	180	-F		P				E	ZX
53 CATA	02	1135	1140	11580	N17	E51	.801	16051	6.3	150	-N	2	P	1140	67	1.1		ZX
53 KHAR	02	1135	1141	12150	N17	E53	.820	16051	6.5	400	-F		P					ZX
54 KANZ	02	1154	1159	1207	S20	E66	.923	16052	7.4	13	-N	3						ZX
54 KHAR	02	1155	1155	1208	S21	E66	.924	16052	7.4	13	-F		P					ZX
GRF75055	02	1157>9	1208+2	12150	S14	E70	.942	16052	7.7	18	-F						D	
KANZ	02	1157	1210	12150	S11	E64	.902	16052	7.3	180	1F	3						
KHAR	02	1208	1208	12110	S18	E76	.972	16052	8.2	30	-F		P				D	
56 KHAR	02	1240	1243	12570	N17	E57	.853	16051	6.8	170	-F		P					ZX
57 KHAR	02	1253E		13120	S21	E73	.961	16052	8.0	190	-F		P				D	ZX
58 KHAR	02	1257E		13180	N22	E55	.849	16051	6.7	210	-F	*	P				D	ZX
59 KHAR	02	1328E		13320	N15	E20	.425	16046	4.1	40	-F		P				D	ZX
GRP75060	02	1342	1447+7 1619	1621	N20	E49	.790	16051	6.2	159	-B				110	1.8	E	
RAMY	02	1342	1449	14530	N19	E50	.797	16051	6.3	710	-B	*	V		106		FDE	
KHAR	02	1354E	1354	14310	N20	E51	.803	16051	6.4	370	-N	*	P				E	
HOLL	02	1421E	1443	1725	N21	E47	.774	16051	6.1	1840	-B	*	C		107		FDE	
HOLL	02	1421E	1619	1725	N21	E47	.774	16051	6.1	1840	-N	*	C		84		FDE	
KHAR	02	1438E	1458	14550	N19	E50	.797	16051	6.4	170	1B	*	P	1450	150	2.8	E	
BIGB	02	1442	1447	1513	N20	E47	.771	16051	6.1	31	-B	*	C	1447	80	1.2		
BIGB	02	1444	1454	1556	N27	E58	.823	16051	6.4	72	-B	*	C	1454	90	1.4		
MCMA	02	1520E		16210	N16	E46	.768	16051	6.2	610	-N	*	P	1520	50	.8	E	
GRF75061	02	1413+0	1421	1454	S25	E55	.852	16052	6.7	41	-N				90	1.7	E	
BIGB	02	1413	1421	1453	S25	E55	.852	16052	6.7	40	-N	2	C	1421	80	1.4		
KANZ	02	1413		14170	S25	E55	.852	16052	6.7	40	-F	1					E	
KHAR	02	1415E		14550	S25	E56	.860	16052	6.8	480	1N		P	1425	110	2.2	E	
62 HOLL	02	1527	1529	1553	S26	E57	.870	16052	6.9	26	-N	2	C		29		DE	ZX
63 HOLL	02	1635	1635	1646	N15	E17	.389	16046	4.0	11	-B	3	C		30		DE	ZX
GRP75064	02	1738+0	1741 1751	1831	N16	E17	.400	16046	4.0	53	-B						F	
PALE	02	1738	1751	1824	N14	E16	.367	16046	3.9	46	-B	3	C		143		F	
BIGB	02	1738	1741	1837	N18	E19	.444	16046	4.2	59	-B	2	C	1741	40	.4		
65 BIGB	02	1840	1847	1858	N23	E57	.868	16051	7.1	18	-N	2	C	1847	30	.6		ZX
GRP75066	02	1858+2	1859+3	1937	N15	E16	.378	16046	4.0	39	-N						F	
PALE	02	1859	1959	1937	N14	E15	.355	16046	3.9	39	-N	3	C		20		F	
BIGB	02	1900	1902	19020	N16	E18	.411	16046	4.1	20	-N	1	P	1902	60	.6		
GRF75067	02	1945+2	1948	1954	N26	E50	.819	16051	6.6	9	-B				40	.7		
BIGB	02	1945	1947	19470	N26	E50	.819	16051	6.6	20	-B	2	P	1947	40	.6	E	
HOLL	02	1947	1948	1954	N26	E50	.819	16051	6.6	7	-B	3	C		43		F	
GRP75068	02	2009>9	2031+4	2043	N19	E49	.787	16051	6.5	34	-N				35	.6	F	
PALE	02	2009	2030U	20450	N19	E50	.797	16051	6.6	360	-N	3	C		47		F	ZX
HOLL	02	2031	2031	2041	N20	E48	.780	16051	6.5	10	-B	3	C		20			ZX
GRP75069	02	2024>9	2037+0	2138	S21	E55	.842	16052	7.0	66	1B				160	3.0		
HOLL	02	2024	2037	2138	S21	E55	.842	16052	7.0	66	1B	3	C		200		FDE	
PALE	02	2035	2037	20400	S21	E55	.842	16052	7.0	50	1B	3	V		131		F	
BIGB	02	2035E	2035	20350	S26	E52	.830	16052	6.8		1B	1	P	2035	160	2.7		
70 PALE	02	2045	2045	2048	N19	E50	.797	16051	6.6	3	-N	3	C		22		F	ZX
71 CULG	02	2139E	2141	2152	S22	E65	.918	16052	7.8	130	-F		P	2141	40	.9		ZX
72 CULG	02	2245	2253	2340	N20	E50	.900	16051	6.7	55	-N		C	2255	100	1.6	KFT	ZX

Hα SOLAR FLARES

JUNE 1979

OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS	
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY	MIN.		CONG	TYPE	TIME UT	MEAS. AREA Millionths of Disk	CORR. AREA Sq. Deg.		
GRF75073	02	2259>9	2316+1	2338	N16	E15	.378	16046	4.1	39	-N				110	1.2		
CULG	02	2259	2316	2346	N15	E15	.367	16046	4.1	47	-N		C	2316	110	1.3	F	
VORO	02	2313	2317	2329	N17	E15	.390	16046	4.1	16	-B		C	2317	116	1.4	D	
74 CULG	02	2324	2327	2335	N10	E56	.836	16056	7.2	11	-F		C	2327	30	.5		ZX
75 CULG	02	2334	2336	2355	S20	E62	.896	16052	7.6	21	-F		C	2336	50	1.0	KF	ZX
GRF75076	03	0003>9	0039	00410	S18	F59	.870	16052	7.4	32	-F						J	
CULG	03	0009	0042	0130	S21	E58	.867	16052	7.4	81	1F		P	0042	150	3.1		
VORO	03	0038	0039	0041	S16	E60	.876	16052	7.5	3	-F		C	0039	45	1.1	J	
GRF75077	03	0129+4	0136+2	0159	N14	E50	.783	16051	6.8	30	2B				430	6.9	IJV	
CULG	03	0129	0136	0215	N13	E50	.781	16051	6.8	46	2B		C	0136	320	5.3	VFIT	
VORO	03	0133	0136	0152	N18	E50	.793	16051	6.8	19	2N		C	0136	350	6.0	E	
PALE	03	0133E		0158	N19	E47	.766	16051	6.6	250	1B	3	C				FDE	
VORO	03	0133	0137	0159	N10	E50	.775	16051	6.8	26	1N		C	0137	179	3.0	EJ	
GRF75078	03	0148+2	0153+4	0225	N17	E14	.379	16046	4.1	37	1N				210	2.3	EJ	
CULG	03	0136	0153	0235	N17	E14	.379	16046	4.1	59	-N		C	0153	160	1.7	F	
VORO	03	0148	0155	0225	N18	E15	.401	16046	4.2	37	1N		C	0155	403	4.7	EJ	
MITK	03	0150	0157	0219	N17	E13	.369	16046	4.1	29	1N		C	0157	210	2.3	E	
79 PALE	03	0157	0158	0201	N25	W50	.815	16041	30.3	4	-N	3	C		102			ZX
GRF75080	03	0218+3	0223+0	02440	N20	E43	.729	16051	6.3	26	1N				150	2.2	DK	
CULG	03	0218	0223	0320	N18	E44	.732	16051	6.4	62	-N		C	0223	120	1.7	TK	
VORO	03	0221	0223	0244	N22	E42	.728	16051	6.2	23	1N		C	0223	179	2.7	D	
81 CULG	03	0349	0350	0415	N15	E48	.765	16051	6.8	26	-N		C	0350	90	1.4	T	ZX
82 CULG	03	0523	0527	06150	N15	E47	.754	16051	6.7	520	-N		P	0527	120	1.8	KFT	ZX
83 CULG	03	0544	0557	06150	N08	E50	.772	16056	7.0	310	-N		P	0557	30	.5		ZX
GRF75084	03	0842+8	0905+2 0937+3	1113	N18	E39	.676	16051	6.3	151	2N				660	8.9	EIO	
WEND	03	0842	0937	1115	N17	E41	.695	16051	6.4	153	2N		C	0937	660	9.4	CF	
KIEV	03	0845	0905	10250	N18	E40	.688	16051	6.4	1000	2N		P	0905	400		EI	
KANZ	03	0849	0939	1111	N17	E39	.672	16051	6.3	142	2N	3						
KHAR	03	0850	0907	10500	N20	E37	.664	16051	6.1	1200	2N		P	0912	700	10.2	EO	
CATA	03	0935E	0940	10100	N18	E38	.665	16051	6.2	350	2B	2	P	0940	674	9.3		
GRF75085	03	0907+6	0920+4 0940	1119	S26	E47	.787	16052	6.9	132	1B						ELO	
KHAR	03	0907	0920	10350	S26	E48	.796	16052	7.0	880	2B	*	P	0920	390	6.1	ELO	
WEND	03	0910	0924	1116	S17	E53	.816	16052	7.4	126	1N	*	C	0924	150	2.7	CE	
KANZ	03	0913	0923	1121	S27	E47	.791	16052	6.9	128	1B	*					F	
CATA	03	0935E	0940	10100	S29	E44	.774	16052	6.7	350	1B	*	P	0940	168	2.7		
GRF75086	03	0910+6	0915 0923	0935	S30	W47	.804	16040	30.9	25	-N						DG	
WEND	03	0910		0930	S30	W46	.796	16040	30.9	20	-N		C				CDG	
KHAR	03	0914E	0915	09240	S30	W48	.812	16040	30.8	100	-F		P	0915	40	.8		
KANZ	03	0916	0923	0935	S32	W47	.813	16040	30.9	19	-N	1						
KHAR	03	0925E		0940C	S29	W48	.808	16040	30.8	150	-F		P	0928	55	1.0	D	
87 KHAR	03	1136E	1138	11450	S29	W48	.808	16040	30.9	90	-F		V	1138			D	ZX
88 KHAR	03	1203E	1203	12130	N23	E42	.732	16051	6.7	100	-F		P				D	ZX
93 KHAR	03	1210E	1210	12130	N20	W56	.852	16041	30.3	30	-F		P				D	ZX
GRF75090	03	1310E	1347+6	1400	N19	E40	.692	16051	6.5	50	-N				60	.8		
NCNA	03	1310E	1347	1403	N18	E36	.642	16051	6.2	530	-F		C	1347	70	1.0	EF	
KHAR	03	1313E		13500	N17	E41	.695	16051	6.6	370	-F		P	1340	110	1.6		
KHAR	03	13-0E	1353	13530	N22	E40	.707	16051	6.6	130	-F		P				D	
HOLL	03	13+5	1352	1357	N22	E40	.707	16051	6.6	12	-B	3	C		49			
91 KHAR	03	1340E	1340	13430	S21	E49	.783	16052	7.2	30	-F		P				D	ZX

Hα SOLAR FLARES

JUNE 1979

OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS	
					APPROX													
	DATE	START	MAX. PHASE	END	LAT.	WEST DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY	MIN.		CONF.	TYPE	TIME UT	MEAS. AREA Millionths of Disk	CORR. AREA Sq. Deg.		
GRF75092	03	1433+8	1434+4	1521	N20	E33	.619	16051	6.1	48	-B				120	1.5	U	
RAMY	03	1433	1437	14410	N20	E33	.619	16051	6.1	8D	-B	3	V		145		UDE	
LVOV	03	1433	1434	1503	N20	E33	.619	16051	6.1	30	-F		C	1438	100	1.5		
MCMA	03	1433	1435	15450	N19	E33	.613	16051	6.1	72D	-B		C	1435	100	1.4	E	
BIGB	03	1433	1434	1505	N20	E33	.619	16051	6.1	32	-B	3	C	1434	150	1.8		
HOLL	03	1433	1434	1536	N21	E35	.648	16051	6.2	63	-B	3	C		83		F	
WEND	03	1446E		14470	N19	E35	.636	16051	6.2	1D	-N		C	1447	75	1.0		
GRF75093	03	1758+1	1801+1	1818	S20	E47	.765	16052	7.3	20	-N				50	.8	H	
HOLL	03	1758	1802	1838	S20	E48	.775	16052	7.3	32	-B	3	C		53			
PALE	03	1758E		18250	S21	E43	.728	16052	7.0	27D	-B	3	C				H F	
MCMA	03	1759E	1801	1805	S22	E48	.782	16052	7.3	6D	-N		C	1801	35	.5	D	
BIGB	03	1759	1801	1810	S20	E47	.765	16052	7.3	11	-N	2	P	1801	70	1.1		
94 BIGB	03	1801E	1801	1916	N18	E30	.571	16051	6.0	15D	-N	1	P	1801	38	.4		ZX
95 MCMA	03	1919E	1920	19350	N21	E34	.680	16051	6.7	16D	-N		C	1920	30	.4	E	ZX
96 MCMA	03	2026E		2100	N18	E37	.653	16051	6.6	34D	-B		C	2038	100	1.4	E	ZX
97 MCMA	03	2030	2031	20380	S22	E47	.772	16052	7.4	8D	-N		C	2031	40	.6	E	ZX
98 VORO	03	2256	2259	2304	N16	E00	.263	16046	4.0	6	-N		C	2259	90	.9	D	ZX
GRF75099	04	0025+1	0026+1 0036	0050	N20	E32	.607	16051	6.4	25	-N						F	
PALE	04	0025	0026	01020	N20	E32	.607	16051	6.4	37D	-N	3	C		25		F	
PALE	04	0025	0036	01020	N20	E32	.607	16051	6.4	37D	-F	3	C		28		F	
VORO	04	0026	0027	0038	N20	E32	.607	16051	6.4	12	1N		C	0027	161	2.1		
100 CULG	04	0058	0109	0128	S23	E29	.598	16052	6.2	30	-F		C	0109	40	.5		ZX
101 CULG	04	0116	9143	0238	S21	E53	.826	16052	8.0	82	-F		C	0143	80	1.4		ZX
102 CULG	04	0143	0150	0200	N06	E39	.640	16056	7.0	17	-F		C	0150	40	.5		ZX
103 CULG	04	0302	0313	0332	S27	E33	.719	16052	7.1	30	-N		C	0313	30	.4		ZX
GRF75104	04	0340+7	0356 0405+4	0510	N19	E30	.577	16051	6.4	90	2B				900	10.9	FIJKUZ	
CULG	04	0340U	0407	05140	N13	E30	.570	16051	6.4	94D	3N		C	0407	1400	17.2	ZI	
MITK	04	0346	0407	05930	N20	E30	.584	16051	6.4	77D	2B		C	0407	740	9.2	FTZ	
YUNN	04	0347	0405	0500	N19	E30	.577	16051	6.4	73	3B		C		1447			
MANI	04	0352E	0356	05050	N19	E30	.577	16051	6.4	73D	2B	3	C		450		U F	
MANI	04	0352E	0408	05050	N19	E30	.577	16051	6.4	73D	2N	3	V		700		U F	
PALE	04	0353E	0409	04320	N20	E30	.534	16051	6.4	39D	2B	2	C		701		F	
MANI	04	0405E	0408U	04180	N19	E30	.577	16051	6.4	5D	2N	2	P		700	8.8		
MANI	04	0405E	0405U	04100	N19	E30	.577	16051	6.4	5D	2N	2	P		450	5.7	UF	
ABST	04	0457E	0457	05450	N14	E26	.492	16051	6.2	48D	-N		P	0457	87	1.0	D	
ABST	04	0457E	0457	05450	N22	E27	.567	16051	6.2	48D	1N		P	0457	174	2.2	EJ	
ABST	04	0457E	0457	05450	N20	E30	.584	16051	6.5	48D	-N		P	0457	87	1.1	D	
ABST	04	0457E	0457	05450	N17	E26	.514	16051	6.2	48D	-N		P	0457	87	1.0	D	
WEND	04	0518E		05190	N21	E29	.580	16051	6.4	1D	-N		C				B	
105 ABST	04	0542E	0543	05450	N16	W17	.397	0	3.0	3D	-N		P	0543	87	.9	DJ	ZX
106 BUCA	04	0605	0606	0641	S19	E46	.752	16052	7.7	36	-N		C	0606	32	.5	D	ZX
GRF75107	04	0655	0700	0704	S25	E35	.667	16052	6.9	9	-N				80	1.1	D	
CATA	04	0655	0700	0705	S26	E35	.674	16052	6.9	10	-B	2	C	0700	84	1.1		
BUCA	04	0700E		0702	S25	E35	.667	16052	6.9	2D	-N		P	0702	65	1.2	CD	
GRF75108	04	0705	1355 1415	1440	N20	E26	.539	16051	6.2	+35	-N						K	
KANZ	04	0724	0727	0731	S22	E39	.619	16051	7.2	7	-N	2					D	
CATA	04	0730	0733	0735	S22	E39	.631	16051	7.2	5	-N	2	C	0730	45	.6		
GRF75109	04	1349E	1415	1440	N20	E26	.539	16502	6.5	51	-N						EK	
MCMA	04	1349E	1356	1440	N20	E26	.539	16052	6.5	51D	-N			1356	80	.9		
MCMA	04	1349E	1415	1440	N20	E26	.539	16052	6.5	51D	-N		C	1415	100	1.2	EK	
	04	1115	1154	NO FLARE PATROL														
110 MCMA	04	1459	1502	1536	N17	W07	.320	16046	4.1	35	-N		C	1502	40	.4	E	ZX

Hα SOLAR FLARES

JUNE 1979

OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IMPOR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY	MIN.		CONS	TYPE	TIME UT	MEAS. AREA Mill of Disk	CORR AREA Sq Deg	
GRP75111	04	1514+7	1525+5	16070	N18	E22	.475	16051	6.3	53	-N				50	.6	E
MCMA	04	1514	1525	16440	N18	E23	.487	16051	6.4	90D	-N		C	1525	60	.7	E
BIGB	04	1521	1530	1607	N18	E21	.464	16051	6.2	46	-N	3	C	1530	50	.6	
112 BIGB	04	1601	1602	1618	S19	E46	.752	16052	8.1	17	-N	3	C	1602	60	.9	E ZX
GRP75113	04	1632>9	1633 1655	1802	N17	E22	.466	16051	6.3	90	-N						E
BIGB	04	1632	1633	1704	N18	E21	.464	16051	6.3	32	-N	*	C	1633	30	.3	
MCMA	04	1645	1707	17550	N18	E23	.487	16051	6.4	70D	-B	*	C	1707	150	1.8	E
BIGB	04	1651	1655	1802	N14	E23	.453	16051	6.4	71	-N	*	C	1655	70	.7	
114 BIGB	04	1710	1714	1730	N15	W10	.313	16046	4.0	20	-N	3	C	1714	60	.6	ZX
GRP75115	04	1803	1804	1823	N19	E25	.519	16051	6.6	28	-N				60	.7	E
BIGB	04	1803	1804	1824	N20	E25	.527	16051	6.6	21	-N	3	C	1804	60	.7	E
MCMA	04	1805E		1822	N18	E25	.510	16051	6.6	17D	-N		C	1809	55	.6	E
116 BIGB	04	1927	1928	1936	N21	E25	.536	16051	6.7	9	-N	2	C	1928	50	.6	ZX
GRP75117	04	1939	1940 1952	2007	N19	E20	.463	16051	6.3	28	-N						E
BIGB	04	1939	1940	2007	N19	E19	.452	16051	6.2	28	-N	1	C	1940	90	1.0	
BIGB	04	1951	1952	1956	N21	E16	.445	16051	6.0	5	-N	1	C	1952	30	.3	
MCMA	04	1956E		20070	N18	E23	.487	16051	6.6	11D	1N		C	1956	200	2.4	E
118 BIGB	04	2003	2005	2034	S36	E40	.782	16063	7.8	31	-F	1	P	2005	30	.4	G ZX
119 BIGB	04	2005	2007	2011	N11	E14	.303	16062	5.9	6	-F	1	C	2007	30	.3	ZX
GRP75120	04	2014+7	2018+0	2026	N19	E21	.473	16051	6.4	14	-N				50	.6	E
MCMA	04	2014E	2018	20260	N18	E25	.518	16051	6.7	12D	-N		C	2018	60	.7	E
BIGB	04	2017	2018	2028	N19	E21	.473	16051	6.4	11	-N	1	C	2018	50	.6	
BIGB	04	2021	2024	20240	N19	E19	.452	16051	6.3	3D	-N	1	P	2024	50	.5	
121 BIGB	04	2151	2153	2203	N17	E18	.419	16051	6.3	12	-N	2	C	2153	50	.5	ZX
GRP75122	05	0034	0037+5	0056	N18	E15	.398	16051	6.1	22	-F				30	.3	
BIGB	05	0034	0037	0058	N18	E16	.408	16051	6.2	24	-F	2	C	0037	40	.4	
PALE	05	0041E	0042U	0053	N18	E15	.398	16051	6.2	12D	-N	2	C		19		
GRP75123	05	0124	0133 0145	0211	N20	E16	.451	16051	6.4	47	1N						FK
MTK	05	0124		02020	N20	E17	.441	16051	6.3	38D	1N		C	0200	450	5.1	FT
BIGB	05	0125E	0125	0140	N20	E13	.451	16051	6.4	15D	-N	1	P	0125	100	1.1	
MANI	05	0130F	0133U	02200	N20	E18	.451	16051	6.4	50D	-N	3	P		150	1.7	F
MANI	05	0134E	0145U	02200	N20	E18	.451	16051	6.4	46D	1N		P		300	3.4	
CULG	05	0206E	0206E	0247	N18	F16	.429	16051	6.4	41D	1N		P	0206	340	3.8	FB
124 MANI	05	0134E	0134U	0143	N07	E29	.497	16056	7.2	9D	-F	3	P		80	.9	ZX
GRP75125	05	0455+5	0514>9 0729+3	0838	N17	E14	.376	16051	6.3	223	2B						FHIJKU
MTK	05	0455E	0526	07420	N18	E14	.388	16051	6.3	167D	2B		C	0526	990	11.1	FTZ
ISTA	05	0455		0740	N18	E14	.388	16051	6.3	165	3B		V				EK
TAOH	05	0458	0521	0846	N16	E15	.396	16051	6.3	228	3B		C	0514	1238	13.8	EJKZ
YUMA	05	0500	0518	0558	N15	E14	.351	16051	6.3	58	2B		C		1044		
MANI	05	0508E	0529U	0632	N20	E16	.432	16051	6.4	84D	1N	3	C		420		U F
MANI	05	0508E	0514	0632	N20	E16	.432	16051	6.4	84D	1N	3	P		260	2.9	FU
CULG	05	0509E	0521	05580	N18	E15	.398	16051	6.3	49D	2B		P	0521	920	10.4	UYFI
KIEV	05	0530E	0540	0640	N17	E13	.366	16051	6.2	70D	2N		C	0540	900	10.1	EI
BUCA	05	0600E		0825	N18	E12	.370	16051	6.2	145D	2B		C	0605	1074	11.9	
WEND	05	0603F	0607	08490	N17	E12	.356	16051	6.2	164D	1N		C	0607	300	3.3	FHJT
KANZ	05	0655E	0732	0932	N18	E13	.373	16051	6.3	157D	1N	3					F
MONT	05	0729E	0729	0918	N19	E14	.401	16051	6.4	109D	-N		C	0729	220		B
MANI	05	0807E	0807U	08330	N19	E15	.410	16051	6.5	26D	-N	3	C		60		F
MANI	05	0807E	0807U	0833D	N19	E15	.410	16051	6.5	26D	-F	3	P		60	.6	F
KHAR	05	0840E		09000	N16	E14	.363	16051	6.4	20D	-N		P	0848	150	1.6	
ABST	05	0928E	092*	0938C	N15	E14	.351	16051	6.4	10D	-N		P	0928	87	.9	BD
126 KANZ	05	1010	1022	1046	S36	E35	.747	16063	8.0	36	-F	2					ZX
127 CATA	05	1015	1015	1025	S17	E90	1.000	16065	12.2	10	?N	2	C	1015	45		ZX
	IMP.1	NO 1	KANZ	MONT	ZURI												
128 KANZ	05	1038	1038	1047	S19	E36	.643	16052	8.1	9	-F	2					ZX

Hα SOLAR FLARES

JUNE 1979

OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IMPOR-TANCE	OBS.		MEASUREMENTS			REMARKS	
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY	MIN.		CONF.	TYPE	TIME UT	MEAS. AREA Mill of Disk	CORR AREA Sq. Deg.		
GRP75129	05	1304	1315 1330	1358	S20	E35	.637	16052	8.2	46	1N						EJ	
LVOV	05	1304	1315	1350	S20	E36	.648	16052	8.2	46	1N		C	1315	350	4.8	EJ	
ZURI	05	1314E	1330	1348D	S20	E34	.625	16052	8.1	26D	1N		P	1330	250	3.3		
GRP75130	05	1400>9	1455	1538	S20	E35	.637	16052	8.2	98	-N						F	
MCMA	05	1400E		1458D	S21	E34	.632	16052	8.1	58D	1B		C	1400	160	2.0	F	
BIGB	05	1437	1455	1538	S20	E37	.659	16052	8.4	61	-F	3	C	1455	120	1.5		
131 MCMA	05	1436E		1443D	N20	E10	.382	16051	6.4	7D	-F	*	C	1438	40	.4	E	ZX
132 MCMA	05	1436E		1447D	S19	E90	1.000	16065	12.4	11D	-F		C	1443				ZX
GRP75133	05	1541	1551+1	1631	S23	E11	.425	16052	6.5	50	-N				60	.7	EH	
BIGB	05	1541	1551	1631	S23	E12	.432	16052	6.6	50	-N	3	C	1551	60	.7		
MCMA	05	1544E	1552	1606D	S24	E11	.439	16052	6.5	22D	-N		C	1552	60	.7	EH	
134 MCMA	05	1649E		1704D	S18	E98	1.000	16065	12.5	15D	?6		P	1652				ZX
	IMP.1 NO : BIGB HOLL																	
135 BIGB	05	1824	1832	1835	S19	E90	1.000	16065	12.5	11	-N	2	C	1832	40			ZX
136 BIGB	05	1901	1902	1905	S19	E90	1.000	16065	12.5	4	-N	2	C	1902	30			ZX
137 BIGB	05	2012	2013	2018	N21	E04	.368	16051	6.1	6	-F	2	C	2013	30	.3		ZX
138 BIGB	05	2016	2017	2018	S19	E90	1.000	16065	12.6	2	-B	2	C	2017	20			ZX
139 BIGB	05	2036	2039	2046	S18	E18	.424	16052	7.2	8	-B	2	C	2039	50	.5		ZX
140 BIGB	05	2103	2105	2128	S17	W23	.472	16061	4.2	25	-N	2	C	2105	60	.7		ZX
141 CULG	05	2242	2251	2322	S19	E17	.425	16052	7.2	40	-N		C	2251	60	.7	H	ZX
GRP75142	06	0024+2	0027+6	0052	S20	E26	.535	16052	8.0	28	-N				60	.7	F	
CULG	06	0024	0033	0100	S20	E24	.512	16052	7.8	36	-N		C	0033	90	1.1	F	
PALE	06	0026	0027	0044	S20	E28	.557	16052	8.1	18	-B	3	C		39		F	
143 CULG	06	0056	0101	0146	S24	E06	.425	16052	6.6	50	-F		C	0101	40	.4		ZX
144 BIGB	06	0125	0126	0126D	S21	E25	.532	16052	7.9	1D	-N	1	P	0126	40	.5		ZX
145 CULG	06	0256	0300	0306	N16	E90	1.000	16067	12.9	10	-N		C	0300	30		T	ZX
146 CULG	06	0316	0320	0341D	S25	E06	.432	16052	6.6	25D	-N		P	0320	70	.8		ZX
GRP75147	06	0355E	0357	0415	S19	E14	.397	16052	7.2	20	1N						FL	
CULG	06	0355E	0357	0419D	S16	E14	.360	16052	7.2	24D	1N		P	0357	440	5.0	L	
PALE	06	0405E	0405U	0411	S23	E14	.449	16052	7.2	6D	-N	3	C		74		F	
148 CULG	06	0545	0549	0605	N16	E09	1.000	16067	12.9	20	1B		C	0549	80		T	ZX
GRP75149	06	0608+7	0614	0708	S23	E03	.392	16052	6.5	52	-F				100	1.1		
CULG	06	0608	0614	0615D	S24	E04	.410	16052	6.6	7D	-N		P	0614	100	1.1		
BUCA	06	0615		0700	S23	E03	.392	16052	6.5	45	-F		C	0620	107	1.2		
150 CATA	06	0705	0710	0720	S18	E90	1.000	16065	13.0	15	?F	2	C	0710	45			ZX
	IMP.1 NO : KIEV MITK KANZ																	
GRP75151	06	0727+3	0735+2	0817	N17	E79	.983	16067	12.2	50	-N						D	
KANZ	06	0727	0737	0817	N17	E78	.980	16067	12.2	50	-N	*					C	
CATA	06	0730	0735	0755D	N17	E80	.986	16067	12.3	25D	1N	*	P	0735	112			
GRP75152	06	0727+8	0735	0750D	S15	E88	.999	16065	12.9	23	-N							
KANZ	06	0727	0817	0837	S15	E86	.998	16065	12.8	70	-B	3						
CATA	06	0735	0735	0750	S16	E90	1.000	16065	13.1	15	-N	2	C	0735	39			
153 KANZ	06	0940	0943	0956	S17	E87	.999	16065	12.9	16	-B	3						ZX
154 LVOV	06	1201	1210	1240	N15	E76	.972	16067	12.2	39	?N		C	1210	100			ZX
	IMP.1 NO : TELV																	

Hα SOLAR FLARES

JUNE 1979

OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IMPOR-TANCE	OBS.		MEASUREMENTS			REMARKS	
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX LONG. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY	MIN.		CONG	TYPE	TIME UT	MEAS. AREA Mill of Disk	CORR. AREA Sq Deg.		
GRF75155	06	1433+2	1440+5	1517	N14	W07	.271	16051	6.1	44	-N				100	1.0	E	
LVOV	06	1433	1443	1504	N13	W07	.256	16051	6.1	31	1N	*	C	1443	300	3.3	E	
BIGB	06	1434	1442	1525	N14	W07	.271	16051	6.1	51	-N	2	C	1442	90	.9		
MCMA	06	1434E	1443	1525	N14	W07	.271	16051	6.1	510	-B		C	1445	120	1.3	E	
HOLL	06	1435	1440	1509	N21	W02	.361	16051	6.5	34	-B	3	C		52			
HOLL	06	1437	1442	1454	N10	W09	.233	16051	5.9	17	-B	*	C		27			
GRF75156	06	1457>9	1500	1606	N15	E80	.986	16067	12.6	69	-N						E	
BIGB	06	1457	1500	1606	N16	E80	.986	16067	12.6	69	-N	3	C	1500	40			
MCMA	06	1528		1?310	N14	E80	.986	16067	12.6	30	-N		C	1530			E	
157 HUAN	06	1606	1607	1610	S32	W90	1.000	16040	30.9	4	-N	1	C	1607	25		D	ZX
GRF75158	06	1642+2	1645+1	1656	N17	00	.294	16051	6.7	14	-N				40	.4		
MCMA	06	1642	1645	1700	N17	W01	.294	16051	6.6	18	-N		C	1645	40	.4	E	
HOLL	06	1644	1646	1652	N17	E00	.294	16051	6.7	8	-N	3	C		44		F	
159 HOLL	06	1654	1657	1703	N10	W11	.257	16062	5.9	9	-N	3	C		22			ZX
160 KANZ	06	1657E		1709	N16	E75	.969	16067	12.3	120	-F	1						ZX
161 BIGB	06	1730	1733	1800	N17	E80	.986	16067	12.7	30	-B	3	C	1733	130		AK	ZX
GRF75162	06	1750>3	1810+8	1854	S21	E08	.380	16052	7.3	64	-N				100	1.1	E	
MCMA	06	1750	1810	1845	S21	E13	.414	16052	7.7	55	-N		C	1810	100	1.1	E	
BIGB	06	1805	1810	1902	S22	E03	.376	16052	7.0	57	-N	3	C	1810	100	1.0		
163 BIGB	06	1806	1808	1827	N17	E80	.986	16067	12.8	21	-B	3	C	1808	60		AK	ZX
GRF75164	06	1856+0	1857+1	1904	S17	E86	.998	16065	13.2	8	-N				30		AD	
BIGB	06	1856	1857	1905	S17	E85	.996	16065	13.2	9	-B	3	C	1857	40		A	
HUAN	06	1856	1858	1903	S18	E87	.999	16065	13.3	7	-N	1	C	1858	20		D	
GRF75165	06	1909	1911+1	1925	S20	E05	.350	16052	7.2	16	-B				30	.3	U	
BIGB	06	1909	1912	1927	S19	E05	.334	16052	7.2	18	-B	3	C	1912	40	.4		
PALE	06	1910E	1911	1922	S21	E06	.370	16052	7.2	120	-B	3	C		20		U	
166 BIGB	06	2001	2005	2021	N17	E80	.986	16067	12.8	20	-B	3	C	2005	120		K	ZX
167 BIGB	06	2031	2040	2111	S15	E80	.986	16065	12.9	40	-N	3	C	2040	40			ZX
GRF75168	06	2039+3	2042+4	2126	N09	E08	.209	16056	7.5	47	-N				50	.5		
PALE	06	2039	2042	2046C	N08	E05	.165	16056	7.2	70	-N	3	C		26		F	
BIGB	06	2042	2046	2126	N09	E08	.209	16056	7.5	44	-N	3	C	2046	70	.7		
HUAN	06	2042		2053D	N09	E08	.209	16056	7.5	110	-F	1	P				D	
GRF75169	06	2105	2111	2139	N17	E71	.950	16067	12.2	34	1B						A	
BIGB	06	2105	2111	2139	N16	E78	.945	16067	12.1	34	1B	3	C	2111	190		A	
PALE	06	2106E	2106U	2106D	N18	E72	.956	16067	12.3		-N	3	C		55		FDE	
170 BIGB	06	2211	2214	2228	N08	E06	.175	16056	7.4	17	-F	3	C	2214	30	.3		ZX
171 BIGB	07	0002E	0002	0006	S15	E80	.986	16065	13.0	40	-N	3	C	0002	20			ZX
172 BIGB	07	0007	0019	0057	S15	E80	.986	16065	13.0	50	-N	3	C	0019	30			ZX
173 BIGB	07	0014	0016	0027	N17	E75	.969	16067	12.6	13	-N	3	C	0016	60			ZX
174 CULG	07	0041	0046	0115	N12	W07	.239	16051	6.5	34	-N		C	0046	120	1.2	L	ZX
175 BIGB	07	0050	0052	0101	N15	E70	.944	16067	12.3	11	-N	3	C	0052	40			ZX
176 BIGB	07	0109	0119	0128	N06	E75	.966	0	12.7	19	-N	3	C	0119	50			ZX
GRF75177	07	0124+4	0127+1	0143D	S18	E85	.997	16065	13.4	19	1N				90		A	
CULG	07	0124	0128	0143D	S18	E85	.997	16065	13.4	190	1N		C	0128	90			
BIGB	07	0124	0127	0137E	S18	E85	.997	16065	13.4	130	-B	3	C	0127	110		A	
NANI	07	0128	0128U	01340	S18	E79	.980	16065	12.9	60	-N	3	P		40	1.0		
178 CULG	07	0134	0137	0143D	S18	W52	.811	16061	3.2	90	-F		C	0137	30	.4		ZX
	07	0144	0151	NO FLARES PATROL														
	07	0209	0218	NO FLARE PATROL														
GRF75179	07	0244E	0244	0307D	N21	W01	.358	16051	7.0	23	-N						F	
MANI	07	0244E	0244U	0307D	N21	W01	.358	16051	7.0	230	-N	3	P		50	.5	F	
MANI	07	0244E	0244U	0307D	N21	W01	.358	16051	7.0	230	-N	3	V		50		F	

Hα SOLAR FLARES

JUNE 1979

OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS	
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY	MIN.		CONF.	TYPE	TIME UT	MEAS. AREA Mill of Disk	CORR AREA Sq. Deg.		
	07	0332	0339	NO FLARE PATROL														
	07	0439	0450	NO FLARE PATROL														
180 ABST	07	0510E	0516	0522D	N15	E70	.944	16067	12.5	12D	1F		P	0517	87		DJ	ZX
181 ABST	07	0548	0559	0602	N12	E69	.937	16067	12.4	14	-F		C	0559	87		DJ	ZX
GRP75182	07	0625E	0625	0631D	N15	E69	.938	16067	12.4	6	1F				98		D	
ABST	07	0625E	0625	0631	N16	E70	.944	16067	12.5	60	1F		P	0626	87		D	
MANI	07	0630E	0632	0707	N15	E68	.932	16067	12.4	37D	-N	3	V		98			
MANI	07	0630E	0632	0707	N15	E68	.932	16067	12.4	37D	-F	3	P		98	1.9		
GRP75183	07	0627>9	0658+1	0724	N20	W14	.410	16051	6.2	57	-F						D	
MANI	07	0627	0658	0712D	N20	W13	.402	16051	6.3	45D	-F	3	P		28	.2		
ABST	07	0655	0659	0724	N20	W16	.429	16051	6.1	29	-F		C	0659	87	1.8	D	
MANI	07	0657E	0658	0712D	N20	W13	.402	16051	6.3	15D	-N	3	V		28			
GRP75184	07	0630E	0631	0715D	S18	E74	.965	16065	12.8	45	-N							
MANI	07	0630E	0631	0715D	S18	E74	.965	16065	12.8	45D	-B	3	V		38			
MANI	07	0630E	0631	0715D	S18	E74	.965	16065	12.8	45D	-N	3	P		38	.7		
GRP75185	07	0652E	0653	0657	S16	W54	.825	16061	3.2	5	-F							
MANI	07	0652E	0653	0657	S16	W54	.825	16061	3.2	5D	-N	3	V		15			
MANI	07	0652E	0653	0657	S16	W54	.825	16061	3.2	5D	-F	3	P		15	.2		
GRP75186	07	0753+3	0755+3 0811	0824	N16	E64	.907	16067	12.1	31	-N						JV	
ATHN	07	0753E	0755	0827	N15	E61	.884	16067	11.9	34D	-N	1		0755	33	.3		
ABST	07	0756	0758	0803D	N19	E68	.935	16067	12.4	7D	-F		P	0758	87		D	
ABST	07	0810	0811	0820	N15	E66	.928	16067	12.3	10	1N		C	0811	87		DJV	
187 KHAR	07	0851E		0907D	N17	E78	.945	16067	12.6	16D	-F		P				D	ZX
188 KHAR	07	0857E		0904D	S17	W56	.845	16061	3.2	7D	-F		P				D	ZX
GRP75189	07	0910	0913+1	0917	N15	E65	.913	16067	12.3	7	-N						DJ	
ABST	07	0910	0913	0917	N15	E66	.920	16067	12.3	7	1N		C	0913	87		DJ	
KHAR	07	0911E	0914	0917D	N16	E65	.914	16067	12.3	6D	-N		P				D	
190 KHAR	07	1019	1020	1033	S13	W90	1.000	16053	31.7	14	-F		P	1020			EH	ZX
191 KHAR	07	1100E	1102	1115D	S12	W90	1.000	16053	31.7	15D	-F		P	1102			DH	ZX
192 KHAR	07	1105	1108	1125	N16	E67	.927	16067	12.5	20	?F		P	1110	160		H	ZX
	IMP.1 NO 3 CATA																	
193 KHAR	07	1135	1136	1155D	S12	W90	1.000	16053	31.7	20D	-F		V	1136			DH	ZX
194 KHAR	07	1209E		1216D	N16	E67	.927	16067	12.5	7D	-F		P					ZX
195 KHAR	07	1312E	1312	1322D	S18	W84	.317	16052	7.3	10D	-N		P				E	ZX
196 HUAN	07	1340		1352	S14	W90	1.000	16053	31.8	12	-F	1	C	1346	20		D	ZX
GRP75197	07	1354+6	1403	1418	N20	W46	.757	16046	4.1	24	-N							
HUAN	07	1354		1418	N20	W45	.747	16046	4.2	24	-F	1	C				E	
HOLL	07	1400	1403	1416	N15	W48	.763	16046	4.0	16	-N	3	C		31		F	
BIGB	07	1405E	1405	1444	N20	W45	.757	16046	4.1	39D	1B	3	P	1405	180	2.7		
GRP75198	07	1442+0	1447+2	1504	S18	E61	.887	16065	12.2	22	-N				60	1.3	E	
BIGB	07	1442	1449	1504	S18	E61	.887	16065	12.2	22	-N	3	C	1449	80	1.7		
HOLL	07	1442	1447	1507	S19	E61	.889	16065	12.2	25	-B	3	C		37			
HUAN	07	1442		1501	S18	E63	.902	16065	12.3	19	-F	1	C				E	
KANZ	07	1444E	1449	1456D	S18	E61	.887	16065	12.2	12D	-N	2						
199 BIGB	07	1509	1516	1528	N16	W22	.453	16051	6.8	19	-F	3	C	1516	50	.6		ZX
GRP75200	07	1709+9	1714+5	1740	S24	W04	.412	16052	7.4	31	-N				30	.3	F	
BIGB	07	1709	1714	1741	S25	W02	.424	16052	7.6	32	-N	*	C	1714	40	.4		
PALE	07	1718	1719	1739	S23	W06	.403	16052	7.3	21	-N	*	C		23		F	
201 HUAN	07	1710	1711	1718	S13	W90	1.000	16053	1.8	8	-F	1	C	1711	20		D	ZX
202 BIGB	07	1723	1732	1811	N24	E49	.800	16054	11.4	48	?F	*	C	1732	130	2.0		ZX
	IMP.1 NO 4 HUAN HOLL PALE																	
203 HOLL	07	1730	1732	1743	N20	W17	.438	16051	6.5	13	-B	3	C		26			ZX

Hα SOLAR FLARES

JUNE 1979

OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IMPOR-TANCE	OBS.		MEASUREMENTS			REMARKS	
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY	MIN.		COND	TYPE	TIME UT	MEAS. AREA Mill of Disk	CORR AREA Sq. Deg.		
204 BIGB	07	1734	173.	1745	S16	E70	.944	16065	13.0	11	-N	3	C	1738	38			ZX
205 HUAN	07	1736		1748	S13	W90	1.000	16053	1.0	12	-F	1	C	1745	20		D	ZX
GRP75206	07	1745>9	1748	1831	N16	E58	.868	16067	12.1	46	-F							
PALE	07	1745	1748	1835	N16	E60	.877	16067	12.2	50	-N	*	C		26		FDE	
HUAN	07	1823		1826	N16	E56	.843	16067	12.0	3	-F	*	C					
207 PALE	07	1748	1749	1755	S16	E68	.933	16065	12.8	7	-N	3	C		18		F	ZX
208 HOLL	07	1750	1752	1807	N20	W18	.448	16051	6.4	17	-N	3	C		26		F	ZX
209 HUAN	07	1812		1818	S14	W90	1.000	16053	1.0	6	-F	1	C	1816	20	.3	D	ZX
210 PALE	07	1825	1826	1834	S16	E67	.927	16065	12.8	9	-N	3	C		22		FDE	ZX
211 HUAN	07	1841	1842	1846	S14	W90	1.000	16053	1.0	5	-F	1	C	1842	20		D	ZX
GRP75212	07	1904+2	1906+1	1914	N08	W08	.196	16056	7.2	10	-N				20	.2	F	
HOLL	07	1904	1906	1914	N08	W08	.196	16056	7.2	10	-N	3	C		20			
BIGB	07	1905	1907	1928	N05	W10	.193	16056	7.0	23	-N	3	C	1907	90	.9		
PALE	07	1906	1906	1911	N08	W08	.196	16056	7.2	5	-N	3	C		21		F	
213 BIGB	07	1941	1943	1949	N14	W23	.449	16051	6.1	8	-F	3	C	1943	40	.5		ZX
214 HOLL	07	1944	1945	1957	S18	W58	.864	16061	3.5	13	-N	3	C		17			ZX
215 CULG	07	2206	2211	2217	S09	W09	.220	16060	7.2	11	-F		C	2211	40	.4		ZX
216 CULG	07	2253	2255U	2255C	S19	W11	.373	16052	7.1	2D	-F		P	2255	50	.5		ZX
217 BIGB	07	2259	2302	2303E	S21	W03	.362	16052	7.7	4D	-F	3	C	2302	40	.4		ZX
GRP75218	07	2322>9	2337+2	0021	N20	W21	.480	16051	6.4	59	1B						FZ	
CULG	07	2322	2339	0022	N21	W21	.490	16051	6.4	60	1N		C	2339	180	2.1	F	
HOLL	07	2331	2337	0020	N20	W21	.480	16051	6.4	49	1B	3	C		195		Z F	
BIGB	07	2334	2337	0000E	N19	W22	.481	16051	6.3	260	-B	3	C	2337	140	1.5		
GRF75219	07	2352+0	2355+1	0005	N02	E08	.143	16057	8.6	13	-F				45	.5		
CULG	07	2352	2356	0005	N03	E08	.148	16057	8.6	13	-N		C	2356	60	.6	T	
BIGB	07	2352	2355	0000E	N02	E08	.143	16057	8.6	8D	-F	3	C	2355	30	.3		
220 CULG	08	0058	0059	0108	N20	E28	.557	16058	10.1	10	-F		C	0059	20	.2		ZX
221 CULG	08	0134	0137	0147	N18	E61	.887	16067	12.6	13	-N		C	0137	30	.6	T	ZX
222 CULG	08	0227	0233	0258	S22	W03	.380	16052	7.9	31	-N		C	0233	140	1.6	FL	ZX
223 CULG	08	0235	0244	0301	N03	E07	.131	16057	8.6	26	-F		C	0244	90	.9	T	ZX
224 CULG	08	0251	0255	0329	S18	E53	.821	16065	12.1	38	-F		C	0255	20	.3		ZX
225 CULG	08	0312	0317	0331	N12	E49	.766	16067	11.8	19	-F		C	0317	20	.3		ZX
226 CULG	08	0337	0350U	0417	N13	E33	.576	16058	10.6	40	-F		C	0350	10	.1		ZX
227 CULG	08	0418	0420	0423	S20	W13	.404	16052	7.2	5	-F		C	0420	70	.8		ZX
228 CULG	08	0611	0612	0614D	S20	W18	.450	16052	6.9	3D	-N		P	0612	50	.6		ZX
GRP75229	08	0708+0	0715+0	0746	S21	W07	.378	16052	7.8	38	1N						EIJ	
KIEV	08	0708	0715	0750	S22	W09	.404	16052	7.6	42	2N		C	0715	500	5.7	EI	
ABST	08	0708	0715	0742	S21	W05	.370	16052	7.9	34	1N		C	0715	305	3.3	EJ	
ATHN	08	0720E	0720	07310	S23	W10	.424	16052	7.6	110	-N	1		0720	84	.9		
ISTA	08	0721E		0731	S21	E00	.361	16052	8.3	10D	2N		V				F	
KANZ	08	0728E		0751	S21	W08	.383	16052	7.7	23D	-N	1					B	
230 ISTA	08	0721E		0738	N16	E57	.852	16067	12.6	17D	-F		V				D	ZX
231 KANZ	08	0751	0755	0815	N20	W29	.568	16051	6.2	24	-N	2						ZX
GRP75232	08	0851+4	0859+0	0914	N19	W28	.549	16051	6.3	23	-N							
KANZ	08	0851	0859	0918	N18	W28	.542	16051	6.3	27	-N	2						
YUNN	08	0855	0859	0910	N20	W28	.557	16051	6.3	15	1N		C		193			

Hα SOLAR FLARES

JUNE 1979

OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IMPOR-TANCE	OBS.		MEASUREMENTS			REMARKS	
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	HeMATH PLAGE REGION	CMP. DAY	MIN.		CONF.	TYPE	TIME UT	MEAS. AREA Millionths of Disk	CORR. AREA Sq. Deg.		
GRF75233	08	0918+4	0919+3	0930	N28	W32	.603	16051	6.0	17	-N						DJV	
ABST	08	0918	0919	0930	N21	W32	.618	16051	6.0	12	-N		C	0919	87	1.2	DJV	
KANZ	08	0922	0922	0939	N20	W32	.603	16051	6.0	17	-N	2					D	
234 KANZ	08	1006	1014	1030	S27	W15	.511	16052	7.3	24	-F	1						ZX
GRF75235	08	1042+3	1047+0	1100	N17	W25	.497	16051	6.6	18	-F							
KANZ	08	1042	1047	1051D	N17	W25	.497	16051	6.6	9D	-N	1					E	
KHAR	08	1045	1047	1100	N17	W26	.510	16051	6.6	15	-F		P	1049	65	.8	D	
236 KHAR	08	1138	1139	1155	S25	W12	.465	16052	7.6	17	-F		P	1144	98	1.8	D	ZX
	08	1200	1236	NO FLARE PATROL														
GRF75237	08	1452+8	1504+0	1516	N18	W28	.542	16051	6.5	24	-N				58	.6	E	
MCMA	08	1452	1504	1518	N19	W28	.549	16051	6.5	26	-B		C	1504	58	.6	E	
ZURI	08	1500	1504	1516	N18	W28	.542	16051	6.5	16	-B		C	1504	60	.7		
HUAN	08	1500		1510	N17	W27	.522	16051	6.6	10	-F	1	C	1503	35	.4	E	
238 MCMA	08	1542		1548D	S21	W11	.402	16052	7.8	6D	-N		C	1548	40	.4	E	ZX
GRF75239	08	1602+2	1606	1617	S21	E51	.818	16065	12.5	15	-F						E	
MCMA	08	1602	1606	1620	S20	E53	.825	16065	12.6	18	-F		C	1606	40	.7	E	
HUAN	08	1604		1614	S23	E50	.807	16065	12.4	10	-F	1	C					
240 MCMA	08	1752	1759	1808	S21	W11	.402	16052	7.9	16	-N		C	1759	50	.6	E	ZX
GRF75241	08	1818	1820 1836	1837	N17	E49	.778	16067	12.4	19	-N							
HUAN	08	1818	1820	1828	N18	E51	.801	16067	12.6	10	-N	1	C	1820	20	.3	D	
MCMA	08	1828E	1836	1845	N16	E48	.765	16067	12.4	17D	-F		C	1836	30	.5	E	
GRF75242	08	1825	1825 1854	1931	S21	W11	.402	16052	7.9	66	-N						E	
PALE	08	1825	1825	1849	S22	W12	.423	16052	7.9	24	-N	3	C		51		FOE	
MCMA	08	1836E	1854	1944D	S21	W11	.402	16052	8.0	68D	-N		C	1854	100	1.1	E	
PALE	08	1914	1915	1917	S22	W12	.423	16052	7.9	3	-N	3	C		25		FOE	
243 MCMA	08	1828E	1837	1855	N22	W26	.551	16051	6.8	27D	-F		C	1837	25	.3	D	ZX
244 MCMA	08	1901E	1915	1921D	N20	W28	.557	16051	6.7	20D	-N		C	1915	60	.8	E	ZX
245 MCMA	08	1912	1914	1917D	N03	W03	.072	16057	8.6	5D	-F		C	1914	30	.3	E	ZX
246 MCMA	08	2022E	2022	2029D	S17	E17	.406	16069	10.1	7D	-N		C	2022	30	.3	E	ZX
GRF75247	08	2039	2043+0	2056D	N03	W02	.061	16057	8.7	17	-N				45	.5		
MCMA	08	2039	2043	2055D	N03	W03	.072	16057	8.6	16D	-N		C	2043	40	.4	E	
PALE	08	2043E	2043U	2056D	N03	W02	.061	16057	8.7	13D	-N	3	C		49		F	
GRF75248	08	2133>9	2135 2236+8	2324	N22	W33	.626	16051	6.4	111	1N				210	2.7	U	
HOLL	08	2133	2135	2213	N20	W33	.614	16051	6.4	40	-N	3	C		41			
CULG	08	2210	2244	2329U	N22	W33	.628	16051	6.4	79D	1N		C	2244	240	3.1		
HOLL	08	2228	2236	2318	N24	W33	.641	16051	6.5	58	-B	3	C		175		U	
249 CULG	08	2258	2301	2319	S16	W13	.378	16052	8.0	21	-F		C	2301	40	.4		ZX
250 CULG	08	2308	2327	2347	N19	W69	.941	16046	3.8	39	-F		C	2327	70			ZX
251 CULG	08	2324	2326	2338	S18	E42	.708	16065	12.1	6	-F		C	2326	10	.1		ZX
GRF75252	08	2344	0006+7 2451	0123	N23	W32	.624	16051	6.6	99	1N						ELU	
BIGB	09	0000E	0006	0058	N21	W30	.586	16051	6.8	58D	-N	2	P	0006	140	1.7		
MITK	09	0037E		0123D	N21	W29	.575	16051	6.9	46D	1N	*	P	0037	230	2.9	E	
BIGB	09	0042	0051	0101	N28	W36	.697	16051	6.3	19	-F	*	C	0051	60	.8		
CULG	08	2344	2413U	0202D	N23	W32	.624	16051	6.6	136D	1N		C	2413	360	4.5	LU	
GRF75253	09	0018+4	0031 0044	0202D	N18	W67	.928	16046	4.0	104	-N							
CULG	09	0018	0044	0202D	N19	W69	.940	16046	3.8	104D	-N		C	0044	70			
BIGB	09	0022	0031	0101E	N18	W66	.922	16046	4.1	39D	-N	2	P	0031	50			
254 CULG	09	0029	0031	0042	S26	W25	.583	16052	7.1	13	-F		C	0031	90	1.2		ZX
255 CULG	09	0121	0126	0200	N04	W08	.153	16057	8.5	39	-F		C	0126	40	.4		ZX

Hα SOLAR FLARES

JUNE 1979

OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IMPOR-TANCE	OBS.		MEASUREMENTS			REMARKS	
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX LONG. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Millionths of Disk	CORR. AREA Sq. Deg.		
256 CULG	09	0126	0129	0202D	N25	E43	.747	0	12.3	36D	-N		P	0129	50	.7	L	ZX
257 CULG	09	0145	0147	0158	S18	E50	.793	16065	12.8	13	-F		C	0147	30	.5		ZX
	09	0151	0157	NO FLARE PATROL														
258 CULG	09	0157E	0159	0202D	S16	E14	.364	16069	10.1	5D	-F		P	0159	20	.3		ZX
259 PALE	09	0211E	0224U	0229D	N15	E39	.659	16067	12.0	18D	-N	3	C		32			ZX
	09	0213	0219	NO FLARE PATROL														
260 MITK	09	0252	0254	0310	S21	W16	.445	16052	7.9	18	-F		C	0254			E	ZX
261 CULG	09	0335E	0338	0400	S28	E50	.798	16065	12.9	25D	-N		C	0338	40	.7		ZX
262 CULG	09	0342	0343	0350	S21	W17	.454	16052	7.9	8	-F		C	0343	120	1.4	LT	ZX
263 CULG	09	0408	0410	0414	S18	W14	.389	16052	8.1	6	-F		C	0410	20	.2	LT	ZX
264 CULG	09	0418	0421	0429	S22	W17	.466	16052	7.9	11	-N		C	0421	120	1.4	LT	ZX
265 CULG	09	0425	0427	0433	S29	E51	.836	0	13.0	8	-F		C	0427	50	.8		ZX
266 CULG	09	0429	0433	0444	S26	W31	.648	16052	8.9	15	-N	*	C	0433	70	.9		ZX
267 CULG	09	0458E	0507	0523	S29	W30	.656	0	7.0	25D	-N		C	0507	20	.3	K	ZX
GRF75268	09	0511+1	0513	0527	N17	E23	.472	16058	10.9	16	-N						D	
CULG	09	0511	0513	0535	N16	E23	.463	16058	10.9	24	-N	*	C	0513	20	.2		
ISTA	09	0512		0519	N18	E23	.481	16058	10.9	7	-N	*	V				D	
269 ISTA	09	0512		0519	N17	W45	.735	16051	5.8	7	-N		V				D	ZX
270 CULG	09	0517	0527	0541	N18	W71	.950	16046	3.9	24	?F		C	0527	80		F	ZX
	IMP.1 NO 1 TACH ABST																	
GRF75271	09	0519+2	0523+1	0543	N18	E39	.672	16067	12.1	24	-N						JK	
CULG	09	0519	0523	0545D	N19	E37	.654	16067	12.0	26D	-N		P	0523	60	.8	K	
ABST	09	0521	0524	0540	N16	E43	.710	16067	12.4	19	-N		C	0524	87	1.3	DJ	
ABST	09	0521	0524	0540	N19	E38	.665	16067	12.1	19	-F		C	0524	87	1.2	D	
272 ISTA	09	0525		0537	S17	E49	.780	16065	12.9	12	-N		V				E	ZX
273 ISTA	09	0621		0631	N19	W43	.721	16051	6.0	10	-B		V				D	ZX
GRF75274	09	0720+0	0721+1	0726	N20	W45	.746	16051	5.9	6	-N				100	1.5	EV	
ABST	09	0720	0721	0724	N21	W45	.750	16051	5.9	4	-N		C	0721	131	1.9	EV	
MONT	09	0720	0722	0726	N18	W45	.739	16051	5.9	6	-N		C	0722	100		E	
ATHN	09	0722E	0722	0726	N20	W43	.725	16051	6.1	4D	-N	1		0722	21	.2		
275 ABST	09	0755	0756	0820	N24	W45	.762	16051	6.0	25	-N		C	0756	87	1.4	DV	ZX
275 CATA	09	0800E	0800	0805	N23	W44	.748	16051	6.0	5D	-N	2	P	0800	56	.8		ZX
GRP75276	09	0756	0757	0830	N24	W36	.671	16051	6.6	34	1N						EV	
276 ABST	09	0756	0757	0820	N25	W36	.678	16051	6.6	24	1N		C	0757	174	2.4	EV	ZX
276 CATA	09	0800E	0805	0840	N24	W36	.671	16051	6.6	40D	-B	2	P	0805	112	1.5		ZX
277 WEND	09	0802		0816	N15	E41	.683	16067	12.4	14	-N		C				E	ZX
278 ABST	09	0825	0832	0840	S25	W30	.622	16052	7.1	15	-F		C	0832	87	1.2	D	ZX
279 ZURI	09	0848	0848	0900	S26	W29	.621	16052	7.2	12	-F		C	0848	80	1.1		ZX
280 ABST	09	0848	0850	0855	N16	E42	.698	16067	12.5	7	-F		C	0850	87	1.3	DJ	ZX
281 ABST	09	0906	0911	0925	N21	E85	.997	16070	15.8	19	?N		C	0911	87		ADJ	ZX
	IMP.1 NO 1 WEND ZURI																	
282 ZURI	09	1006	1008	1016D	S21	W21	.493	16052	7.8	10D	-F		P	1008	60	.7		ZX
283 ZURI	09	1010	1010	1016D	N20	W45	.746	16051	6.0	6D	-F		P	1010	60	.9		ZX
	09	1145	1206	NO FLARE PATROL														
284 LVOV	09	1206	1210	1232	S19	W21	.473	16052	7.9	26	1N		C	1210	200	2.3	J	ZX
285 KANZ	09	1233	1237	1247	S25	W33	.652	16052	7.0	14	-N	1						ZX

Hα SOLAR FLARES

JUNE 1979

OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IMPOR-TANCE	OBS.		MEASUREMENTS			REMARKS	
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX LONG. DIST	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY	MIN.		CONG	TYPE	TIME UT	MEAS. AREA Millionths of Disk	CORR. AREA Sq. Deg.		
GRF75286	09	1327	1348 1358	1412	N16	W43	.788	16051	5.9	45	-N						FJ	
KANZ	09	1327	1348	14120	N17	W48	.767	16051	6.0	450	-N	1					F	
HOLL	09	1336E	1336U	1411	N18	W49	.780	16051	5.9	350	-B	3	C		43		F	
LVOV	09	1348	1358	1434	N20	W52	.814	16051	5.7	46	-N		C	1358	180	1.9	DJ	
GRF75287	09	1555+1	1558+3	1620	N18	W50	.798	16051	5.9	25	-B				70	1.1	E	
MCMA	09	1559E	1601	1613	N18	W51	.803	16051	5.8	180	-N		C	1601	80	1.3	E	
HOLL	09	1556	1559	1620	N19	W44	.732	16051	6.4	24	-B	3	C		68			
BIGB	09	1556	1558	1624	N17	W50	.788	16051	5.9	28	-B	3	C	1558	60	1.0		
288 BIGB	09	1624	1625	1632	N22	W49	.792	16051	6.0	8	-B	3	C	1625	10	.2	D	ZX
289 HOLL	09	1704	1706	1711	S21	W24	.525	16052	7.9	7	-N	3	C		62			ZX
GRF75290	09	1832+1	1835+0	1848	N17	W52	.807	16051	5.9	16	-B				70	1.2	E	
BIGB	09	1832	1835	1854	N17	W53	.817	16051	5.8	22	-B	3	C	1835	100	1.6		
MCMA	09	1833	1835	1841	N18	W51	.800	16051	5.9	8	-B		C	1835	50	.8	E	
291 BIGB	09	1855	1857	1904	S25	W38	.782	16052	6.9	9	-N	2	C	1857	50	.5		ZX
GRF75292	09	2038+0	2040+2	2052	N23	W45	.758	16051	6.5	14	-N				35	.5	F	
BIGB	09	2038	2042	2055	N23	W45	.758	16051	6.5	17	-N	1	P	2042	38	.4		
HOLL	09	2038	2040	2048	N24	W45	.762	16051	6.5	10	-N	3	C		39		F	
GRF75293	09	2040	2041	20430	N15	E27	.507	16067	11.9	3	-F				30	.3	E	
HUAN	09	2040	2041	2043	N14	E26	.487	16067	11.8	3	-F	1	C	2041	30	.3	E	
BIGB	09	2042E	2042	2050	N15	E26	.494	16067	11.8	80	-N	2	P	2042	30	.3		
BIGB	09	2049	2059	2123	N19	E29	.568	16067	12.0	34	-F	2	C	2059	50	.6		
GRF75294	09	2206+4	2219+0 2241+3	2323	N24	W43	.742	16051	6.7	77	-N						F	
CULG	09	2206	2241	0001	N25	W45	.766	16051	6.5	115	1N		C	2241	260	3.7		
BIGB	09	2209	2219	2318	N24	W48	.712	16051	6.9	69	-B	3	P	2219	140	1.9		
HOLL	09	2210	2219	2309	N24	W42	.732	16051	6.8	59	-N	3	C		137		F	
BIGB	09	2217	2242	2337	N26	W48	.797	16051	6.3	80	-N	3	P	2242	90	1.4		
PALE	09	2219	2219	2234	N24	W43	.742	16051	6.7	15	-N	3	C		72		F	
PALE	09	2243	2244	2253	N24	W43	.742	16051	6.7	10	-N	3	C		39		F	
GRF75295	09	2235+4	2239+2	2303	N19	E27	.536	16067	12.0	28	1B				190	2.2		
PALE	09	2235	2239	2302	N19	E27	.536	16067	12.0	27	1B	3	C		210		FDE	
BIGB	09	2235	2240	2307	N19	E26	.525	16067	11.9	32	-B	3	P	2240	160	1.8		
CULG	09	2235	2241	2304	N18	E28	.541	16067	12.0	29	1B		C	2241	230	2.8		
HOLL	09	2237	2239	2304	N19	E27	.536	16067	12.0	27	1B	3	C		198		FDE	
MANI	09	2239E	2239	2248	N18	E27	.529	16067	12.0	90	-B	3	V		180		F	
MANI	09	2239	2239	2248	N18	E27	.529	16067	12.0	9	-N	3	P		100	1.2	F	
296 CULG	09	2257	2314	0000	N25	E73	.964	16070	15.4	63	-F		C	2314	48			ZX
GRF75297	09	2329+3	2332+1	2346	N16	E31	.565	16067	12.3	17	-N				40	.5	F	
CULG	09	2329	2333	2340	N16	E33	.590	16067	12.5	11	-N		C	2333	40	.5		
PALE	09	2331	2332	2346	N19	E27	.536	16067	12.0	15	-B	3	C		54		F	
BIGB	09	2331	2332	2345	N17	E31	.571	16067	12.3	14	-N	3	P	2332	20	.2		
HOLL	09	2332	2332	2349	N16	E31	.565	16067	12.3	17	-B	3	C		38		F	
298 CULG	09	2341	2349	0002	S21	W31	.602	16052	7.7	21	-F		C	2349	60	.8		ZX
299 CULG	09	2356	2359	0005	N22	E29	.583	16067	12.2	9	-N		C	2359	40	.5		ZX
300 CULG	09	2358	2402	0012	S20	E34	.629	16065	12.5	14	-F		C	2402	10	.1		ZX
301 CULG	10	0059	0108	0121	S17	E42	.786	16065	13.2	22	-N		C	0108	20	.3		ZX
302 CULG	10	0332	0404	0509	N23	W46	.767	16051	6.7	97	1F		C	0404	230	3.7	L	ZX
GRF75303	10	0456+4	0500+3	0525	N03	W22	.377	16057	8.6	29	-N				90	1.0	E	
CULG	10	0456	0500	0528	N04	W22	.379	16057	8.6	32	-N		C	0500	90	1.0		
ABST	10	0500	0503	0521	N02	W23	.392	16057	8.5	21	-N		C	0503	87	1.0	E	
304 CULG	10	0514	0544	0609	N25	W90	1.000	16046	3.5	55	-F		C	0544	30			ZX
GRF75305	10	0523+5	0532+1	0543	N10	W39	.642	16056	7.3	20	-F						DJ	
CULG	10	0523	0533	0548	N10	W39	.642	16056	7.3	25	-F		C	0533	20	.3		
ABST	10	0528	0532	0538	N10	W39	.642	16056	7.3	10	-F		C	0532	87	1.2	DJ	
306 ABST	10	0607	0609	0614	N14	E29	.526	16067	12.4	7	-N		C	0609	96	1.1	DJ	ZX

Hα SOLAR FLARES

JUNE 1979

OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IMPOR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY	MIN.		CONF.	TYPE	TIME UT	MEAS. AREA Mill of Disk	CORR AREA Sq. Deg.	
GRF75307	10	0640+5	0643+2	0659	N23	W57	.864	16051	6.0	19	1N				220	4.4	DJSV
ISTA	10	0640	0643	0655	N20	W58	.866	16051	5.9	15	2B		V				SV
WEND	10	0641		0657	N23	W55	.848	16051	6.2	16	-N		C	0644	50	1.0	C
ABST	10	0641	0644	0700	N23	W60	.886	16051	5.8	19	2N		C	0644	262	5.3	DJ
CATA	10	0645	0645	0700	N25	W57	.868	16051	6.0	15	1B	2	C	0645	224	4.6	
308 ABST	10	0704	0709	0731	N05	W25	.429	16057	8.4	27	-F		C	0709	157	1.8	E ZX
309 ABST	10	0717	0719	0733	N06	W40	.647	16056	7.3	16	-F		C	0719	96	1.3	DJ ZX
GRF75310	10	0759+6	0805	0820	N07	W38	.622	16056	7.5	21	-N				80	1.0	E
WEND	10	0759		0820	N07	W38	.622	16056	7.5	21	-N		C	0804	45	5.0	CE
ISTA	10	0801		0810	N06	W37	.607	16056	7.6	9	-N		V				E
CATA	10	0805	0805	0820	N09	W39	.648	16056	7.4	15	-N	2	C	0805	112	1.5	
GRF75311	10	0801+5	0804+2 0849+9	1023	N22	W46	.763	16051	6.9	142	3B						FHIJKL
ABST	10	0801	0806	0815	N16	W39	.663	16051	7.4	14	-F		C	0806	87	1.2	DJ
WEND	10	0804		09080	N26	W47	.788	16051	6.8	640	2B		C	0902	698	12.0	CFI
KANZ	10	0804	0804	0818	N16	W40	.674	16051	7.3	14	-B	2					E
ABST	10	0806	0855	1020	N25	W50	.811	16051	6.6	134	3N		C	0855	1048	18.2	FJL
ISTA	10	0806		0950	N21	W45	.749	16051	7.0	104	3B		V				FKLV
KANZ	10	0808	0902	1030	N24	W47	.780	16051	6.8	142	3B	3					
CATA	10	0810	0849	1020	N27	W45	.774	16051	7.0	130	3B	2	C	0849	1292	21.0	FHK
MANI	10	0825E	0825U	09000	N20	W48	.776	16051	6.8	350	-N	2	V		110		F
MANI	10	0825E	0825U	09000	N20	W48	.776	16051	6.8	350	-F	2	P		110	1.2	F
KHAR	10	0900E	0900	1127D	N25	W51	.819	16051	6.6	147D	3N		P	0906	1300	143.0	BCEHOZ
GRF75312	10	0855+9	0858 0955+7	1021	N24	E69	.944	16070	15.5	86	-N						DJ
ABST	10	0855	0858	1021	N24	E70	.949	16070	15.6	86	1N	*	C	0858	87		DJ
KANZ	10	0954	1002	1020	N24	E68	.939	16070	15.5	26	-F	*					
KHAR	10	0954E	0955	10250	N24	E69	.944	16070	15.6	310	-F	*	P	0954	100		D
313 KHAR	10	0948E	0950	10150	N16	E26	.300	16067	12.4	270	-F		P	0953	90	1.1	DH ZX
314 KHAR	10	1013E	1013	10170	S20	E28	.562	16065	12.5	40	-F		P				D ZX
	10	1154	1241	NO FLARE PATROL													
315 MCMA	10	1413		1417	N20	W60	.881	16051	6.1	4	-N		C	1413	30	.6	D ZX
GRF75316	10	1451+4	1455+5	1512	N06	W13	.244	16058	9.6	21	-N				160	1.6	EGU
BIGB	10	1451	1455	1534	N05	W12	.222	16058	9.7	43	-N	2	C	1455	160	1.7	G
MCMA	10	1452		15090	N05	W13	.238	16058	9.6	170	-N		C	1457	140	1.4	E
HUAN	10	1452		1504	N05	W14	.254	16058	9.6	12	-F	1	C				E
HOLL	10	1453	1458	1524	N07	W13	.251	16058	9.6	31	-B	3	C		129		U F
LVOV	10	1455	1500	1504	N07	W14	.266	16058	9.6	9	1N		C	1500	200	2.2	E
317 HOLL	10	1455	1500	1515	N03	W26	.448	16057	8.7	20	-N	3	C		26		F ZX
318 HOLL	10	1504	1504	1520	S12	W33	.574	16052	8.2	16	-N	3	C		27		F ZX
GRF75319	10	1504+2	1505	1511	N20	W60	.881	16051	6.1	7	-B				45	1.0	D
BIGB	10	1504	1505	1511	N20	W60	.881	16051	6.1	7	-B	2	C	1505	50	1.0	
MCMA	10	1506		15090	N20	W60	.881	16051	6.1	30	-F		P	1506	35	.7	D
GRP75320	10	1505+8	1506 1514	1522	S25	W45	.770	16052	7.3	17	-N				20	.3	D
BIGB	10	1505	1506	1534	S27	W46	.788	16052	7.2	29	-B	*	C	1506	20	.3	D
MCMA	10	1506		15090	S17	W47	.760	16052	7.1	30	-N	*	P	1509	30	.5	D
HUAN	10	1506		1520	S27	W45	.779	16052	7.3	14	-F	*	C				D
HOLL	10	1513	1514	1522	S23	W37	.681	16052	7.9	9	-N	*	C		20		F
321 HOLL	10	1609	1611	1628	N18	E25	.503	16067	12.5	19	-N	3	C		26		F ZX
322 HUAN	10	1634		16450	N18	W90	1.000	16046	3.9	110	-F	1	P				ZX
GRP75323	10	1730+3	1732+2	1747	S24	W50	.811	16052	7.0	17	-N						F
BIGB	10	1730	1732	1752	S25	W51	.823	16052	6.9	22	-B	2	C	1732	80	1.3	
HOLL	10	1733	1734	1742	S23	W50	.808	16052	7.0	9	-N	3	C		22		F
GRF75324	10	1733+3	1739 1810	1821	N24	E65	.921	16070	15.6	48	-N						G
HOLL	10	1733	1810	1816	N27	E71	.956	16070	16.1	43	-N	3	C				F
BIGB	10	1736	1739	1830	N24	E65	.921	16070	15.6	54	-N	2	C	1739	50		G
MCMA	10	1759E		18210	N23	E65	.920	16070	15.6	220	-F		P	1805	25	.6	D

Hα SOLAR FLARES

JUNE 1979

OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IMPOR-TANCE	OBS.		MEASUREMENTS			REMARKS	
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX WEB. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMR. DAY	MIN.		CONS	TYPE	TIME UT	MEAS. AREA Millionths of Disk	CORR. AREA Sq. Deg.		
GRP75325	10	1759+1	1803+3	1842	S17	E29	.551	16065	12.9	43	-B				150	1.8	UZ	
MCMA	10	1759E		18210	S19	E30	.577	16065	13.0	220	-B		P	1805	125	1.6	E	
BIGB	10	1808	1806	1838	S18	E29	.558	16065	12.9	38	1B	2	C	1806	190	2.2		
HOLL	10	1808	1803	1646	S16	E30	.557	16065	13.0	46	-B	3	C		171		Z U	
PALE	10	1801E	1803U	18190	S17	E27	.527	16065	12.8	180	-N	2	C		130		FDE	
326 BIGB	10	1859E	1900	1927	N20	W63	.903	16051	6.1	28D	-N	2	P	1900	30			ZX
327 BIGB	10	2111	2113	2126	N20	W63	.903	16051	6.2	15	-N	2	C	2113	40	.4		ZX
328 BIGB	10	2158	2159	2205	S36	W54	.882	0	6.9	7	-F	2	C	2159	30	.5		ZX
329 PALE	10	2201E	2202U	22140	N18	E18	.422	16067	12.3	13D	-N	2	C		47		FDE	ZX
330 BIGB	10	2218	2219	2235	N20	W13	.397	16058	10.0	17	-N	2	C	2219	40	.4		ZX
GRP75331	10	2239+0	2240+0	2249	N19	W59	.872	16051	6.5	10	-N				50	1.0		
BIGB	10	2239	2240	2249	N19	W60	.880	16051	6.4	10	-N	2	C	2240	70	1.4		
MANI	10	2239E	2240	22480	N19	W58	.864	16051	6.6	9D	-B	3	W		40			
MANI	10	2239E	2240	22480	N19	W58	.864	16051	6.6	9D	-N	3	P		40	.7		
332 CULG	10	2256	2301	2319	N18	W20	.444	16058	9.5	23	-F		C	2301	40	.4		ZX
333 CULG	10	2320	2326	2341	N02	W31	.516	16057	8.6	21	-F		C	2326	30	.3		ZX
GRP75334	10	2356+9	0006+3	0013	N19	W61	.888	16051	6.4	15	-N				90	2.0		
BIGB	11	0002	0006	0013	N19	W60	.880	16051	6.5	11	1F	2	C	0006	130	2.7		
PALE	11	0008	0009	0011	N18	W61	.886	16051	6.4	3	-N	2	C		20			
CULG	10	2358	2406	0021	N20	W61	.889	16051	6.4	23	-N		C	2406	90	1.9		
335 CULG	11	0033	0037	0046	S16	W50	.788	16052	7.3	13	-F		C	0037	20	.3		ZX
GRP75336	11	0055+3	0101+3 0111	0135	N19	W61	.887	16051	6.5	40	-N				30	.7		
CULG	11	0055	0104	0140	N18	W60	.878	16051	6.5	45	-N		C	0104	40	.8	T	
BIGB	11	0058	0101	0108	N19	W60	.880	16051	6.5	10	-N	2	C	0101	20	.4		
BIGB	11	0110	0111	0129	N20	W63	.903	16051	6.3	19	-N	2	C	0111	20	.5		
337 CULG	11	0100	0115	0151	S25	W51	.824	16052	7.2	51	-F		C	0115	40	.8	T	ZX
338 CULG	11	0117	0119	0123	N20	E12	.367	16067	12.8	6	-F		C	0119	30	.3		ZX
339 CULG	11	0136	0140	0153	S16	W13	.357	16069	10.1	17	-F		C	0140	30	.3	G	ZX
340 CULG	11	0146	0150	0213	N19	W60	.880	16051	6.6	27	-N		C	0150	60	1.3	KT	ZX
341 CULG	11	0146	0152	0231	N18	E27	.527	16067	13.1	45	-N	*	C	0152	130	1.5	SW	ZX
342 CULG	11	0214	0226	0232	S21	W59	.879	16052	6.7	18	-N		C	0226	30	.6	T	ZX
343 CULG	11	0238	0238	0252	N23	E68	.886	16070	15.6	22	-N		C	0238	30	.7		ZX
344 CULG	11	0314	0316	0349	N19	W61	.887	16051	6.6	35	-N		C	0316	50	1.1	T	ZX
345 CULG	11	0314	0323	0333	N11	W32	.552	16057	8.7	19	-F		C	0323	10	.1		ZX
346 CULG	11	0319	0323	0335	N16	E16	.376	16067	12.3	16	-F		C	0323	40	.4	T	ZX
347 CULG	11	0340	0346	0354	N20	E15	.413	16067	12.3	14	-F		C	0346	30	.3		ZX
348 CULG	11	0407	0417	0512	S26	W54	.852	16052	7.1	65	-F		C	0417	40	.8	T	ZX
349 CULG	11	0422	0427	0504	S21	E21	.496	16065	12.8	42	-N		C	0427	50	.6		ZX
350 CULG	11	0442	0454	0532	N21	W59	.875	16051	6.8	50	-F		C	0454	60	1.3	KFT	ZX
GRP75351	11	0443	0452 0501	0532	N17	E15	.377	16067	12.3	49	-N						FJK	
CULG	11	0443	0452	0527	N17	E16	.387	16067	12.4	44	-N		C	0452	80	.9	KFT	
ABST	11	0454E	0501	0530	N16	E17	.388	16067	12.5	360	-F		P	0501	87	1.0	FJ	
ABST	11	0454E	0501	0537	N15	E14	.342	16067	12.3	430	-F		P	0501	87	1.0	DJ	
ABST	11	0508	0510	0516	N19	E14	.391	16067	12.3	8	-F		C	0510	87	1.0	D	
352 KANZ	11	0756	0756	0803	S20	E28	.563	16065	13.4	7	-N	3					D	ZX

Hα SOLAR FLARES

JUNE 1979

OBSERV-ATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS	
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY	MIN.		CONF.	TYPE	TIME UT	MEAS. AREA Millionths of Disk	CORR AREA Sq. Deg.		
GRF75353	11	0852+1	0854+3	0910	S17	E20	.444	16065	12.9	18	-F				70	.6	EJV	
MONT	11	0852	0854	0904	S18	E21	.466	16065	12.9	12	-F		C	0854	50		E	
KANZ	11	0852	0856	0913	S17	E20	.444	16065	12.9	21	-F	1						
ABST	11	0853	0854	0905	S18	E22	.477	16065	13.0	12	-N		C	0854	87	1.0	DJV	
ABST	11	0856	0857	0910	S16	E16	.411	16065	12.7	14	-N		C	0857	87	1.0	DV	
GRF75354	11	1013+7	1020+0	1034	N20	E11	.379	16067	12.3	21	1N				210	2.3	E	
MONT	11	1013	1020	1032	N20	E11	.379	16067	12.3	19	1N		C	1020	250			
KHAR	11	1016E		1024D	N20	E12	.387	16067	12.3	8D	1F		P	1017	220	2.4	E	
KANZ	11	1016	1020	1035	N20	E11	.379	16067	12.3	19	-N	1						
CATA	11	1020	1020	1025D	N20	E12	.387	16067	12.3	5D	-N	2	P	1020	168	1.8		
GRF75355	11	1054+0	1100+2	1111	N20	E13	.395	16067	12.4	17	-N						E	
KANZ	11	1054	1102	1117	N20	E11	.379	16067	12.3	23	-N	2						
MONT	11	1054	1100	1105	N20	E16	.423	16067	12.7	11	-N		C	1100	80		E	
GRF75356	11	1054+5	1102+0	1109	N21	W74	.965	16051	5.9	15	-N							
KANZ	11	1054	1102	1109	N20	W71	.951	16051	6.1	15	-N	*						
MONT	11	1059	1102	1108	N23	W76	.981	16051	5.6	9	-N	*	C	1102	110			
GRF75357	11	1223+2	1225+4	1243	N20	W75	.969	16051	5.9	20	1B							
KANZ	11	1223	1229	1252	N20	W75	.969	16051	5.9	29	1B	1						
ZURI	11	1225	1225	1233	N20	W76	.973	16051	5.8	8	1B		C	1225	100			
358 ZURI	11	1229	1235	1243	S25	W52	.832	16052	7.6	14	-F		C	1235	50	.9		ZX
359 MCMA	11	1355	1402	1420D	S25	W53	.841	16052	7.6	25D	-N		C	1402	60	1.2	E	ZX
360 MCMA	11	1356	1400	1409	N21	E10	.386	16067	12.3	13	-N		C	1400	80	.9	E	ZX
361 MCMA	11	1428	1442	1450	N23	E51	.813	16070	15.4	22	-N		C	1442	40	.7	E	ZX
GRF75362	11	1541>9	1555+0	1604	N23	E52	.821	16070	15.6	23	-N				40	.7	G	
HOLL	11	1541	1555	1604	N25	E52	.827	16070	15.6	23	-B	3	C		54		F	
BIGB	11	1553	1555	1615	N23	E52	.821	16070	15.6	22	-N	2	C	1555	40	.7	G	
MCMA	11	1555E	1555	1601	N23	E51	.813	16070	15.5	6D	-N		C	1555	40	.7	E	
GRF75363	11	1745+0	1746+1	1818	S25	W55	.857	16052	7.6	33	-N				60	1.2	E	
BIGB	11	1745	1747	1818	S26	W55	.859	16052	7.6	33	-N	3	C	1747	50	.5		
MCMA	11	1745E	1746	1805D	S25	W53	.857	16052	7.6	20D	-N		C	1746	80	1.6	E	
GRF75364	11	1747+1	1752+1	1809	N22	W81	.989	16051	5.7	22	1B						A	
BIGB	11	1747	1753	1809	N21	W78	.988	16051	5.9	22	1B	3	C	1753	200		A	
MCMA	11	1748	1752	1805D	N23	W85	.996	16051	5.4	17D	1B		C	1752			A	
365 BIGB	11	1850	1851	1859	N18	E08	.328	16067	12.4	9	-B	3	C	1851	20	.2		ZX
GRF75366	11	1905+4	1915	1932	N23	E51	.813	16070	15.6	27	-N				45	.8	EG	
MCMA	11	1905E		1917D	N23	E51	.813	16070	15.6	12D	-N		C	1917	50	.9	E	
BIGB	11	1909	1915	1932	N23	E52	.821	16070	15.7	23	-N	3	C	1915	40	.7	G	
367 BIGB	11	1913	1916	1940	S23	W53	.835	16052	7.8	27	-N	3	C	1916	30	.5		ZX
368 VORO	11	2116E	2116	2125D	N20	W75	.969	16051	6.3	9D	-F		P	2116	108		E	ZX
369 BIGB	11	2219	2220	2225	S19	E12	.388	16065	12.8	6	-F	3	C	2220	30	.3		ZX
GRF75370	11	2259	2300 2311	2323	S24	W60	.891	16052	7.5	24	-F							
CULG	11	2259	2300	2325	S25	W60	.893	16052	7.5	26	-F		P	2300	60	1.4		
VORO	11	2308E	2311	2321	S24	W60	.891	16052	7.5	13D	1F		C	2311	179	4.1		
371 CULG	11	2327	2332	2350	S24	W70	.951	16052	6.7	23	-N		C	2332	70			ZX
372 BIGB	11	2334	2338	2349	N26	E90	1.000	16091	18.7	15	-N	3	C	2338	40			ZX
GRF75373	11	2336+1	2337+1	2345	N20	W80	.986	16051	6.0	9	-N						D	
CULG	11	2336	2337	2346	N21	W80	.986	16051	6.0	10	-N		C	2337	40			
VORO	11	2336	2338	2345	N20	W80	.986	16051	6.0	9	-N		C	2338	90		D	
BIGB	11	2337	2338	2340	N20	W80	.986	16051	6.0	3	-N	3	C	2338	20			
GRF75374	12	0012+2	0015+0	0019	N20	W80	.986	16051	6.0	7	-N				70		DH	
CULG	12	0012	0015	0025	N20	W80	.986	16051	6.0	13	-N		C	0015	50			
VORO	12	0013	0015	0019	N20	W80	.986	16051	6.0	6	-F		C	0015	108		DH	
BIGB	12	0014	0015	0017	N20	W78	.980	16051	6.2	3	-N	2	C	0015	50			
375 VORO	12	0140	0142	0150	S24	W60	.892	16052	7.6	10	?F		C	0142	116	2.7		ZX
	IMP.1 NO * CULG PALE																	

Hα SOLAR FLARES

JUNE 1979

OBSERV-ATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS	
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY	MIN.		CONF.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.		
376 CULG	12	0156	0202	0212	S25	W61	.901	16052	7.5	16	1N		C	0202	120	2.9	UV	ZX
GRP75377	12	0247	0249+1	0300	N20	W86	.998	16051	5.7	13	1F						H	
VORO	12	0247	0250	0300D	N21	W88	.993	16051	5.5	13D	1F		C	0250	179		H	
MANI	12	0249E	0249U	0300	N20	W85	.996	16051	5.7	11D	1B	3	C					
MANI	12	0249E	0249	0300	N20	W85	.996	16051	5.7	11D	1N	3	P					
	12	0305	0315	NO FLARE PATROL														
378 CULG	12	0548	0549	0555	N14	E83	.237	16067	12.5	7	-N		C	0549	50	.5		ZX
379 ABST	12	0625	0628	0632	N15	E01	.249	16067	12.3	7	-F		C	0628	87	.9	DJ	ZX
GRP75380	12	0647+1	0652	0652D	S25	W65	.926	16052	7.4	5	-N						H	
ISTA	12	0647		0652	S24	W66	.930	16052	7.3	5	-N		V				D	
KANZ	12	0648	0652	0726	S26	W65	.927	16052	7.4	38	-N	1					FH	
381 KANZ	12	0652	0700	0715	N29	E90	1.000	16091	19.8	23	-N	2						ZX
382 CATA	12	0830	0830	0845	S20	W61	.892	16052	7.8	15	-N	2	C	0830	28	.6		ZX
383 KHAR	12	1038E		1055D	S25	W65	.926	16052	7.6	17D	-F		P	1038	80		D	ZX
384 KHAR	12	1120	1122	1137D	S25	W65	.926	16052	7.6	17D	-F		V	1122			EH	ZX
	12	1204	1205	NO FLARE PATROL														
385 HUAN	12	1258		1306	N27	E90	1.000	16091	19.3	8	-F	1	C	1302	20		D	ZX
386 HUAN	12	1301	1304	1306	S23	E90	1.000	0	19.3	5	-N	1	C	1304	30			ZX
387 HUAN	12	1322		1329	N25	E90	1.000	16091	19.3	7	-F	1	C	1322	15		D	ZX
388 HUAN	12	1354		1413	N25	E90	1.000	16091	19.3	19	-F	1	C	1403	20		D	ZX
389 HUAN	12	1421	1423	1428	N25	E90	1.000	16091	19.3	7	-F	1	C	1423	20		D	ZX
390 HUAN	12	1438		1450	N25	E90	1.000	16091	19.4	12	-F	1	C	1444	20		D	ZX
GRP75391	12	1445+4	1500	1521	S18	E05	.330	16065	13.8	36	-F				70	.7	E	
MCMA	12	1445E		1516D	S18	E05	.330	16065	13.8	31D	-F		C	1501	80	.9	E	
KANZ	12	1447		1500D	S16	E05	.330	16065	13.8	13D	-F	1						
BIGB	12	1449	1500	1521	S17	E05	.314	16065	13.8	32	-F	2	C	1500	60	.6		
392 MCMA	12	1452E		1549D	S23	W66	.929	16052	7.7	57D	-F		C	1452	50	1.4	E	ZX
393 BIGB	12	1504	1507	1517	S25	E66	.942	0	17.7	13	-B	2	C	1507	10			ZX
394 HUAN	12	1517	1524	1532	N25	E90	1.000	16091	19.4	15	-F	1	C	1524	15		D	ZX
395 HUAN	12	1541		1552	N25	E90	1.000	16091	19.4	11	-F	1	C	1545	20		D	ZX
GRP75396	12	1545+2	1548+0	1610	N13	W07	.243	16067	12.1	25	-F				50	.5	E	
MCMA	12	1545	1548	1610	N14	W07	.260	16067	12.1	25	-N		C	1548	40	.4	E	
BIGB	12	1547	1548	1548D	N13	W07	.245	16067	12.1	10	-F	2	P	1548	70	.7		
397 HUAN	12	1608	1609	1615	N18	W90	1.000	16051	5.9	7	-F	1	C	1609	20		D	ZX
GRP75398	12	1649+3	1652+2	1658	N20	W90	1.000	16051	6.0	9	-F				25		D	
HUAN	12	1649	1652	1657	N20	W90	1.000	16051	6.0	8	-F	1	C	1652	20		D	
BIGB	12	1652	1654	1658	N20	W90	1.000	16051	6.0	6	-N	2	C	1654	30			
GRP75399	12	2049+3	2055+0	2105	N19	W89	1.000	16051	6.2	16	-N							
BIGB	12	2049	2055	2105	N19	W90	1.000	16051	6.1	16	-N	3	C	2055	40			
HOLL	12	2052	2059	2104	N20	W89	1.000	16051	6.2	12	-N	3	C					
GRP75400	12	2112+1	2113+0	2118D	N16	W06	.283	16067	12.4	6	-N				45	.5	F	
BIGB	12	2112	2113	2118	N16	W06	.283	16067	12.4	6	-N	3	C	2113	40	.4		
HOLL	12	2113	2113	2212	N17	W07	.305	16067	12.4	59	-B	3	C		53		F	
401 BIGB	12	2129	2133	2156	S16	W58	.789	16052	9.1	28	-N	3	P	2133	30	.5		ZX
GRP75402	12	2231+6	2234+4	2244	S14	00	.253	16065	12.9	13	-F				30	.3		
HOLL	12	2231	2234	2240	S17	E00	.383	16065	12.9	9	-N	3	C		29			
BIGB	12	2237	2239	2247	S11	W01	.202	16065	12.9	10	-F	3	C	2238	30	.3		

Hα SOLAR FLARES

JUNE 1979

OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IMPOR-TANCE	OBS.		MEASUREMENTS			REMARKS	
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX LON. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY	MIN.		CONF.	TYPE	TIME UT	MEAS. AREA Mill of Disk	CORR AREA Sq. Deg.		
403 HOLL	12	2347	2351	0014	S17	W01	.303	16065	12.9	27	-N	3	C		57			ZX
GRP75404	13	0004+1	0010+3	0044	S25	W73	.966	16052	7.5	40	-N				50		J	
SIGP	13	0004	0011	0053	S25	W73	.966	16052	7.5	49	-B	2	C	0011	50			
HOLL	13	0005	0010	0034	S22	W68	.940	16052	7.9	29	-B	3	C		35		F	
VORO	13	0008E	0013	00200	S25	W75	.973	16052	7.4	120	1F		P	0013	179		EJ	
405 VORO	13	0145	0147	0153	S17	W02	.307	16065	12.9	8	-N		C	0147	98	.9	E	ZX
406 VORO	13	0151	0151	0156	N08	W58	.850	16057	8.7	5	1F		C	0151	134	2.6		ZX
407 VORO	13	0232	0233	0239	S17	W02	.307	16065	13.0	7	-F		C	0233	134	1.4	E	ZX
408 VORO	13	0241	0243	0253	N15	W25	.477	16058	11.2	12	1F		C	0243	269	3.1	EL	ZX
GRP75409	13	0352	0400+2	0423	N22	E68	.936	16073	18.3	31	1N				180		FH	
YUNN	13	0352	0402	0420	N21	E66	.923	16073	18.1	28	1B		C		129			
TACH	13	0355E	0400	0426	N24	E70	.948	16073	18.4	31D	1N		C	0358	244		FH	
410 TACH	13	0438	0435	0446	N23	E31	.608	16070	15.5	16	1F		C	0440	244	3.2	F	ZX
411 CULG	13	0548E	0553U	0615D	N11	W80	.985	16056	7.2	27D	?F		P	0553	100			ZX
	IMP.1 NO 8 TACH			CATA	HTPR	ABST												
GRP75412	13	0602>9	0611>9	0629	N16	W12	.330	16067	12.4	27	-N				110	1.2	EJK	
ABST	13	0602	0613	0625	N17	W13	.353	16067	12.3	23	-N		P	0613	96	1.1	DJ	
CULG	13	0603	0611	0616D	N15	W12	.316	16067	12.4	13D	-B		P	0611	110	1.1	F	
HTPR	13	0608	0612	0630	N16	W13	.341	16067	12.3	22	-F		C	0612	60	.6	E	
ABST	13	0608	0613	0615	N18	W09	.332	16067	12.6	7	-N		P	0613	87	.9	EJK	
CATA	13	0615	0615	0630	N16	W12	.330	16067	12.4	15	-F	2	C	0615	112	1.2		
ATHN	13	0616E	0618	0627	N14	W12	.305	16067	12.4	11D	-N	1		0618	114	1.4		
PUPP	13	0620	0622	0624	N16	W12	.330	16067	12.4	4	-N							
GRP75413	13	0834+6	0840+2	0904	N23	E30	.597	16070	15.6	30	-N				70	.9	E	
KANZ	13	0834	0842	0902	N23	E30	.597	16070	15.6	28	-N	3						
ISTA	13	0836		0854	N23	E30	.597	16070	15.6	18	-N		V				D	
ATHN	13	0837	0840	0854	N22	E30	.589	16070	15.6	17	-B	1		0840	82	.9		
ATHN	13	0837	0840	0854	N22	E30	.589	16070	15.6	17	-B	3	C		80		DE	
CATA	13	0840	0840	0910	N24	E30	.605	16070	15.6	30	-B	2	C	0840	56	.7		
HTPR	13	0844E		0918	N23	E28	.575	16070	15.5	26D	-N		C	0846	50	.6	E	
KHAR	13	0847E		09100	N23	E31	.608	16070	15.7	23D	-F		P	0900	80	1.0	BE	
GRP75414	13	0846+4	0850+3	0909	N12	W17	.346	16067	12.1	23	-F				45	.5	E	
HTPR	13	0846	0853	0905	N13	W17	.355	16067	12.1	19	-F		C	0853	30	.3	E	
KANZ	13	0846	0850	0913	N12	W18	.360	16067	12.0	27	-N	3						
KHAR	13	0847E		09200	N12	W18	.360	16067	12.0	33D	-F		P	0900	80	.8	BD	
ISTA	13	0847		0857	N11	W15	.310	16067	12.2	10	-F		V				E	
CATA	13	0850	0850	0910	N12	W17	.346	16067	12.1	20	-N	2	C	0850	56	.6		
415 KANZ	13	0902	0913	0921	N14	E75	.967	16076	19.0	19	-F	3						ZX
GRP75416	13	0914+3	0917	0940	S12	W07	.251	16065	12.9	26	-F						E	
HTPR	13	0914		0916D	S12	W08	.259	16065	12.8	2D	-F		C	0916	40	.4	E	
KANZ	13	0917	0917	0940	S12	W07	.251	16065	12.9	23	-F	3						
417 KHAR	13	0920E		0945D	N26	E63	.910	16073	18.1	25D	-F		P	0930			DT	ZX
418 KANZ	13	0932	0936	0948	S19	W12	.391	16065	12.5	16	-F	*						ZX
419 KHAR	13	0945	0945	09520	N28	E67	.936	16091	18.4	7D	-F		V	0946			DT	ZX
420 KHAR	13	0958E	1008	1112D	N21	W90	1.000	16051	6.7	82D	?N		P	1008			EHK	ZX
	IMP.1 NO 8 CATA			KANZ	HTPR													
421 KHAR	13	1017E		10300	N16	E90	1.000	16092	20.2	13D	-F		V	1022			DLT	ZX
422 KHAR	13	1042E	1050	1133C	N16	E90	1.000	16092	20.2	51D	-F		P	1050			DLT	ZX
423 KHAR	13	1045E		1128D	N26	W34	.660	16064	10.9	43D	?F		P	1101	160	2.3	EL	ZX
	IMP.1 NO 8 CATA																	
424 KHAR	13	1111	1111	1142D	N24	E65	.920	16073	18.3	31D	?F		P	1117	100	2.2	DT	ZX
	IMP.1 NO 8 CATA			KANZ														

Hα SOLAR FLARES

JUNE 1979

OBSERV-ATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX LONG. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY	MIN.		CONG	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.	
GRF75425	13	1112+5	1120+1	1132	N19	W15	.398	16067	12.3	20	-N						EL
KHAR	13	1112		1132D	N18	W15	.386	16067	12.3	20D	1F		P	1117	200	2.1	EL
CATA	13	1115	1120	1130	N20	W15	.410	16067	12.3	15	-N	2	C	1120	67	.7	
KANZ	13	1117	1121	1133	N19	W16	.408	16067	12.3	16	-N	1					E
	13	1208	1209	NO FLARE PATROL													
426 HOLL	13	1357	1358	1409	S17	W09	.348	16065	12.9	12	-B	3	C		57		ZX
GRF75427	13	1405+3	1429+2	1459	N24	E61	.894	16073	18.2	54	-N				60	1.3	D
HOLL	13	1405	1430	1457	N25	E65	.921	16073	18.5	52	-N	3	C		82		
BIGB	13	1406	1431	1500	N24	E61	.894	16073	18.2	52	-N	2	C	1431	60	1.2	
MCMA	13	1426	1429	1446D	N22	E58	.868	16073	18.0	20D	-F		C	1429	30	.7	D
428 HOLL	13	1413	1443	1458	N17	W17	.396	16067	12.3	37	-N	3	C		28		ZX
GRF75429	13	1429+1	1430+1	1435	S16	W07	.311	16065	13.1	6	-F				25	.3	
HOLL	13	1429	1430	1435	S17	W09	.340	16065	12.9	6	-N	3	C		29		
BIGB	13	1430	1431	1434	S15	W06	.298	16065	13.2	4	-F	2	C	1431	20	.2	
GRF75430	13	1437+0	1438+2	1446	S12	W09	.269	16065	12.9	9	-N				60	.6	E
BIGB	13	1437	1438	1446	S11	W09	.255	16065	12.9	9	-N	2	C	1438	60	.6	
HOLL	13	1437	1438	1446	S12	W09	.269	16065	12.9	9	-N	3	C		39		
MCMA	13	1437	1440	1446D	S12	W10	.278	16065	12.9	9D	-N		C	1440	75	.8	E
GRF75431	13	1454+2	1506+5	1601	N15	W17	.375	16067	12.3	67	1B				220	2.4	EU
HOLL	13	1454	1508	1605	N17	W17	.396	16067	12.3	71	1B	3	C		290		UDE
BIGB	13	1455	1506	1601	N14	W17	.365	16067	12.3	66	-B	2	C	1506	100	1.1	
HUAN	13	1456		1539D	N14	W18	.378	16067	12.3	43D	1N	1	P	1507	220	2.4	E
RAMY	13	1509E	1511	1513D	N17	W17	.396	16067	12.4	4D	1B	3	V		218		
MCMA	13	1523E		1552	N13	W20	.395	16067	12.1	29D	-B		P	1523	100	1.1	BE
GRF75432	13	1524+1	1526+1	1536	N20	W39	.676	16058	10.7	12	-N				80	1.1	
BIGB	13	1524	1526	1538	N21	W41	.705	16058	10.6	14	-B	2	C	1526	110	1.5	
HOLL	13	1525	1526	1536	N18	W39	.669	16058	10.7	11	-B	3	C		110		
HUAN	13	1525	1527	1531	N20	W40	.689	16058	10.6	6	-F	1	C	1527	40	.5	D
MCMA	13	1525	1527	1536	N20	W39	.678	16058	10.7	11	-B		C	1527	50	.7	E
GRF75433	13	1625+2	1626+7	1655	S18	W18	.361	16065	12.9	30	-N				40	.4	E
MCMA	13	1625	1638	1655	S18	W10	.361	16065	12.9	30	-N		C	1638	40	.4	E
HOLL	13	1625	1626	1655	S17	W10	.347	16065	12.9	30	-B	3	C		38		
BIGB	13	1627	1633	1653	S18	W09	.354	16065	13.0	26	-N	2	C	1633	40	.4	
GRF75434	13	1726+2	1728+2	1736	N23	E59	.878	16073	18.2	10	-N				30	.6	
PALE	13	1726	1729	1730D	N23	E59	.878	16073	18.2	4D	-N	3	C		35		F
MCMA	13	1726	1728	1735	N23	E58	.870	16073	18.1	9	-N		C	1728	25	.6	D
HOLL	13	1728	1730	1736	N25	E64	.915	16073	18.5	8	-B	3	C		26		
435 BIGB	13	2034E	2035	2109	N15	E87	.999	16092	20.4	35D	-B	3	P	2035	50		ZX
GRF75436	13	2148+3	2155+6	2214	N24	E58	.872	16073	18.3	26	-B						F
BIGB	13	2148	2201	2218	N23	E55	.846	16073	18.0	30	-B	3	C	2201	80	1.4	
HOLL	13	2151	2158	2209	N25	E61	.896	16073	18.5	18	-B	3	C		20		F
437 BIGB	13	2215	2216	2236	N14	E87	.999	16092	20.5	21	-B	3	C	2216	20		ZX
438 BIGB	13	2243	2245	2258	N14	E87	.999	16092	20.5	15	-B	3	C	2245	20		ZX
439 CULG	14	0031	0034	0036	S16	E51	.805	16074	17.8	5	-F		C	0034	20	.3	ZX
GRF75440	14	0102>9	0114+3	0138	N23	E28	.491	16070	15.5	36	-N						FGU
CULG	14	0102	0116	0152	N23	E20	.491	16070	15.5	50	1N		C	0116	170	2.8	
PALE	14	0108	0114	0131	N24	E18	.484	16070	15.4	23	-B	3	C		51		U F
PURP	14	0111	0113	0113	N19	E20	.449	16070	15.5	2	1N						
HOLL	14	0111	0116	0133	N25	E20	.514	16070	15.5	22	-B	3	C		74		
BIGB	14	0111	0115	0137	N25	E20	.514	16070	15.5	26	-F	2	C	0115	50	.5	G
YUNN	14	0112	0117	0143	N21	E24	.513	16070	15.9	31	1N		C		225		
441 CULG	14	0125	0131	0143	S25	W13	.481	16065	13.1	18	-F		C	0131	30	.3	G ZX
442 CULG	14	0217	0227	0239	S28	W12	.516	0	13.2	22	-F		C	0227	30	.3	G ZX
443 CULG	14	0309	0313	0319	N27	E71	.955	16091	19.5	10	-F		C	0313	40		T ZX
444 CULG	14	0318	0320	0345	N02	E85	.996	0	20.5	35	?F		C	0320	140		SG ZX
	IMP.1 NO 1 PALE																

Hα SOLAR FLARES

JUNE 1979

OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IMPOR-TANCE	OBS.		MEASUREMENTS			REMARKS	
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.		
445 CULG	14	0500	0503	0508	N27	E70	.950	16091	19.5	8	-F		C	0503	30		T	ZX
446 CULG	14	0626E	0633U	0641D	N16	W36	.624	16067	11.6	15D	1N		P	0633	320	4.2		ZX
447 PURP	14	0805	0806	0815	N25	E50	.808	16073	18.1	10	?B							ZX
	IMP.1 NC : MONT																	
GRP75449	14	0837+3	0837+3	0905	S13	W21	.423	16065	12.8	28	-N				120	1.3	EK	
MONT	14	0837E	0837	0844D	S13	W21	.423	16065	12.8	7D	-N		C	0837	110			
CATA	14	0840	0840	0900D	S13	W22	.436	16065	12.7	20D	-N	2	P	0840	140	1.6		
HTPR	14	0848E		0905	S14	W21	.432	16065	12.8	17D	-F		C	0850	50	.5	EK	
449 KHAR	14	0919E	0920	0930D	S30	W90	1.000	0	7.6	20D	-F		P	0919			DL	ZX
450 KHAR	14	0933E	0937	0945D	N30	E68	.943	16091	19.5	12D	?F		P	0938	100		H	ZX
	IMP.1 NO : HTPR MONT																	
451 KHAR	14	0947E	0949	1025D	N14	E64	.903	16076	19.2	38D	?F		P	0948	100		EL	ZX
	IMP.1 NO : HTPR MONT																	
452 KHAR	14	0950E	0954	1007D	N14	E78	.979	16092	20.3	17D	-F		P	0954			L	ZX
453 KHAR	14	1056E		1111D	S18	W18	.437	16065	13.1	15D	-F		V	1054				ZX
454 KHAR	14	1114E		1130D	S30	W90	1.000	0	7.7	16D	-F		V	1120				ZX
455 KHAR	14	1158E		1212D	S17	W21	.459	16065	12.9	14D	-F		V	1158				ZX
456 KHAR	14	1203E		1212D	N14	E78	.979	16092	20.4	9D	-F		V	1204				ZX
457 HOLL	14	1325	1325	1353	S20	W24	.522	16065	12.8	28	-N	3	C		34			ZX
458 HOLL	14	1332	1333	1415	N17	W29	.541	16067	12.4	43	-N	3	C		24			ZX
GRP75459	14	1637+5	1642+5	1700	S18	W22	.481	16065	13.0	23	-N				40	.5	E	
HTPR	14	1637	1642	1700	S18	W22	.481	16065	13.0	23	-F		C	1642	50	.5	E	
MCMA	14	1640	1647	1715	S18	W22	.481	16065	13.0	35	-N		C	1647	40	.5	E	
HOLL	14	1642	1645	1653	S17	W23	.483	16065	13.0	11	-N	3	C		29		F	
GRP75460	14	1803+6	1810+0	1823	S17	W24	.495	16065	13.0	20	-N				20	.2	F	
MCMA	14	1803E		1818D	S18	W22	.481	16065	13.1	15D	-N		C	1810	20	.2	E	
HOLL	14	1809	1810	1821	S17	W23	.483	16065	13.0	12	-N	3	C		37		F	
PALE	14	1809	1810	1824D	S17	W24	.495	16065	13.0	15D	-N	3	C		19		F	
HOLL	14	1810	1810	1819	S12	W27	.496	16065	12.7	9	-N	3	C		25		F	
GRP75461	14	2109+7	2114+2	2136D	N15	W46	.738	16067	11.4	27	-N				25	.4		
BIGB	14	2109	2114	2215	N15	W46	.738	16067	11.4	66	-N	2	C	2114	30	.4		
HOLL	14	2116	2116	2136	N16	W46	.741	16067	11.4	20	-N	3	C		19			
GRP75462	14	2241+2	2244+0	2301	S15	W27	.516	16065	12.9	20	-N				35	.4		
HOLL	14	2241	2244	2301	S17	W26	.519	16065	13.0	20	-B	3	C		37			
CULG	14	2243	2244	2300	S14	W28	.522	16065	12.8	17	-F		C	2244	30	.4		
GRP75463	14	2245+7	2251+7	2311	N22	E41	.709	16073	18.0	26	-N				40	.6		
HOLL	14	2245	2251	2311	N24	E41	.718	16073	18.0	26	-N	3	C		40			
CULG	14	2247	2258U	2308	N21	E41	.704	16073	18.0	21	-F		C	2258	30	.4		
BIGB	14	2252	2255	2313	N22	E41	.709	16073	18.0	21	-N	2	C	2255	40	.5		
464 BIGB	14	2347	2349	2357	S23	W90	1.000	16052	8.2	10	-N	2	C	2349	30			ZX
465 CULG	15	0107E	0107E	0121D	S24	E27	.591	0	17.1	14D	-F		P	0107	60	.8	SFG	ZX
466 CULG	15	0227	0229	0250	N13	E71	.947	16092	20.4	23	-F		C	0229	30			ZX
467 CULG	15	0322	0329	0342	N15	W45	.726	16067	11.8	20	-N		C	0329	10	.2		ZX
468 CULG	15	0359	0403	0414	N29	E48	.808	16091	18.8	15	-N		C	0403	30	.5		ZX
469 HTPR	15	0501E		0625	N14	E62	.688	16092	19.9	84D	-F		C	0552	30	.6		ZX
GPP73470	15	0844	0845	0916	N25	E39	.703	16073	18.3	32	-N						DJ	
ABST	15	0844	0846	0912	N26	E40	.718	16073	18.4	28	-N		C	0846	87	1.3	DJ	
CATA	15	0910E	0910	0920D	N25	E39	.703	16073	18.3	10D	-N	2	P	0910	112	1.6		
471 KHAR	15	0938E		0952D	N16	W41	.683	16067	12.3	14D	-F		P	0945	55	.8		ZX
472 KHAR	15	0943E	0948	1007D	N14	E61	.880	16092	20.0	27D	?F		P	0945	220		H	ZX
	IMP.1 NO : ABST																	

Hα SOLAR FLARES

JUNE 1979

OBSERV-ATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS	
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX LONG. DIST.	CENTRAL DISTANCE	HELIOGRAPH PLAGE REGION	CMP. DAY	MIN.		CONG	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.		
473 KHAR	15	0947E		1003D	N14	E50	.778	16076	19.2	16D	-F		V	0950			E	ZX
474 KHAR	15	0946E	0952	1010D	S17	W33	.684	16065	12.9	22D	?F		V	0952				ZX
	IMP.1 NO # ABST																	
475 KHAR	15	1037E	1040	1043D	N27	E43	.752	16091	18.7	6D	-F		P				D	ZX
476 KHAR	15	1053E	1054	1107D	N16	W42	.695	16067	12.3	14D	-F		P	1058	110	1.6	E	ZX
477 KHAR	15	1055	1055	1110D	N14	E50	.778	16076	19.2	15D	-F		P	1055			D	ZX
478 KHAR	15	1059E	1059	1115D	N16	E61	.882	16092	20.0	16D	-F		P	1059				ZX
479 KHAR	15	1108E	1115	1128	S04	W90	1.000	0	8.7	28D	?N		P	1115			AD	ZX
	IMP.1 NO # RAPY																	
480 KHAR	15	1128	1129	1145D	N24	E33	.634	16073	18.8	17D	-N		V	1129			L	ZX
481 KHAR	15	1222E		1252D	N22	E38	.676	16073	18.4	30D	-F		P	1222	80	1.1	L	ZX
GRP75482	15	1322+0	1327+3	1346	N22	E32	.610	16073	18.8	24	-N				25	.3		
MCMA	15	1322	1327	1358	N22	E32	.610	16073	18.8	36	-N		C	1327	30	.4	E	
HOLL	15	1322	1330	1333	N23	E32	.617	16073	18.8	11	-N	3	C		21		F	
483 MCMA	15	1410E	1422	1438D	N22	E32	.610	16073	18.8	28D	-N		C	1422	20	.3	D	ZX
484 BIGB	15	1418	1428	1454	N15	W60	.873	16058	11.1	36	-F	2	C	1428	80	1.6		ZX
485 BIGB	15	1458	1459	1505	S19	W41	.706	16065	12.5	7	-N	2	C	1459	20	.3		ZX
GRP75486	15	1528+8	1537+8	1543	N27	E48	.723	16091	18.6	15	-N				30	.4	EG	
BIGB	15	1528	1537	1538E	N28	E48	.729	16091	18.6	10D	-N	2	C	1537	20	.3	G	
MCMA	15	1533E	1537	1544	N27	E41	.733	16091	18.7	11D	-N		C	1537	40	.6	E	
HOLL	15	1536	1537	1541	N25	E38	.692	16091	18.5	5	-F	3	C		19			
487 BIGB	15	1624	1627	1709	N15	W45	.726	16067	12.3	45	-F	2	C	1627	60	.9		ZX
GRP75488	15	1627	1628	1647	N23	W02	.376	16070	15.5	20	-F				40	.4	EGJ	
BIGB	15	1627	1628	1645	N23	W03	.378	16070	15.5	18	-F	2	C	1628	30	.3	G	
MCMA	15	1630E		1649D	N23	W02	.376	16070	15.5	19D	-N		C	1630	50	.5	EJ	
GRP75489	15	1910+3	1915+8	1928	N12	W50	.775	16067	12.0	18	-N				40	.6		
BIGB	15	1910	1915	1928	N11	W50	.773	16067	12.0	18	-N	3	C	1915	110	1.8		
HOLL	15	1913	1915	1919	N12	W50	.775	16067	12.1	6	-N	3	C		35		F	
MCMA	15	1913		1928	N12	W50	.775	16067	12.1	15	-N		C	1915	35	.6	E	
490 MCMA	15	1913		1923	N22	E28	.565	16073	17.9	10	-F		C	1915	25	.3	E	ZX
GRP75491	15	1945+1	1947+1	1959	N19	W46	.749	16067	12.4	14	-N				60	.9	U	
MCMA	15	1945	1947	1959D	N19	W45	.739	16067	12.4	14D	-N		C	1947	60	.9	E	
BIGB	15	1946	1947	1955	N17	W47	.754	16067	12.3	9	-N	2	C	1947	50	.8		
HOLL	15	1946	1948	1959	N19	W46	.749	16067	12.4	13	-B	3	C		57		U F	
GRP75492	15	2129+0	2129	2150	N20	W47	.763	16067	12.4	21	-F							
			2137															
HOLL	15	2129	2129	2139	N20	W48	.773	16067	12.3	10	-N	3	C		17			
BIGB	15	2129	2137	2201	N21	W47	.766	16067	12.4	32	-F	2	C	2137	30	.5		
GRP75493	15	2147+1	2149+2	2200	N17	W47	.754	16067	12.4	13	-B				50	.8		
BIGB	15	2147	2149	2154	N17	W47	.754	16067	12.4	7	-B	2	C	2149	30	.5		
CULG	15	2147	2149	2200	N18	W45	.735	16067	12.5	13	-N		C	2149	50	.8		
HOLL	15	2148	2151	2204	N17	W47	.754	16067	12.4	16	-B	3	C		58			
494 CULG	15	2205	2234U	2259	S14	W85	.997	16069	9.5	54	-F		P	2234	30			ZX
495 CULG	15	2304	2306	2315	S33	E68	.952	0	21.1	11	-F		C	2306	20		G	ZX
496 CULG	15	2318	2320	2331	N19	W71	.950	16058	10.6	13	-F		C	2320	30			ZX
497 CULG	15	2339	2345	0027	N23	W07	.391	16070	15.5	48	-N		C	2345	100	1.1	G	ZX
498 CULG	16	0013	0022	0050U	N15	W50	.780	16067	12.3	37D	-F		C	0022	100	1.6		ZX
499 CULG	16	0026	0030	0037	N22	W41	.707	16067	12.9	11	-F		C	0030	60	.8		ZX

Hα SOLAR FLARES

JUNE 1979

OBSERV-ATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY	MIN.		CONF.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.	
500 CULG	16	0111	0111	0114	S12	E13	.377	16074	17.4	3	-N		C	0111	60	.7	ZX
501 CULG	16	0135	0139	0148	N15	W58	.856	16067	11.7	13	-F		C	0139	40	.6	ZX
502 CULG	16	0140	0229	0258	S13	W46	.740	16065	12.6	78	-N		C	0229	90	1.4	K ZX
GRP75503	16	0145+5	0151+1 0206	0227	N30	E37	.713	16091	18.8	42	-N						
CULG	16	0145	0151	0235	N32	E35	.705	16091	18.7	50	1N		C	0151	270	3.9	F
VORO	16	0150	0152	0204	N30	E35	.695	16091	18.7	14	-F		P	0152	54	.7	D
VORO	16	0205	0206	0218	N26	E43	.746	16091	19.3	13	-F		C	0206	63	.9	E
504 CULG	16	0230	0235	0244	N15	E55	.829	16092	20.2	14	-F		C	0235	40	.7	ZX
505 CULG	16	0345	0347	0357	N13	W55	.826	16067	12.0	12	-N		C	0347	70	1.2	ZX
GRP75506	16	0504+3	0509+1	0526	N14	W55	.828	16067	12.1	22	-F				80	1.4	E
CULG	16	0504	0510	0538	N13	W56	.836	16067	12.0	34	-N		C	0510	60	1.1	
ABST	16	0507	0509	0513	N16	W54	.821	16067	12.2	6	-F		C	0509	105	1.9	E
507 CULG	16	0523	0529	0536	N19	W79	.982	16058	10.3	15	-F		C	0529	30		ZX
508 CULG	16	0530	0531	0551	S18	E22	.483	16074	17.9	21	-F		C	0531	30	.3	ZX
509 ABST	16	0614	0617	0622	N20	W49	.782	16067	12.6	8	-F		C	0617	87	1.4	D ZX
510 TFLV	16	1029E	1032	1042	N15	W12	.313	0	15.5	130	-F	1	C		61	.6	E ZX
511 KHAR	16	1325E		1331D	N14	W55	.828	16067	12.4	60	-F		P				ZX
GRP75512	16	1340	1348+7 1413+5	1507	N23	E17	.460	16073	17.8	87	-N				130	1.5	EK
MCMA	16	1340	1418	1632D	N23	E17	.460	16073	17.8	172D	-N		C	1418	125	1.5	EK
MCMA	16	1340	1355	1632D	N23	E17	.460	16073	17.8	172D	-N			1355	70	.8	
KHAR	16	1348E	1348	1357D	N23	E19	.479	16073	18.0	9D	-F		P				E
KHAR	16	1354E		1410D	N24	E15	.456	16073	17.7	16D	-F		P				
BIGB	16	1411E	1413	1455	N23	E16	.451	16073	17.8	44D	-N	2	C	1413	180	1.9	
HOLL	16	1412	1416	1421	N23	E19	.479	16073	18.0	9	-N	3	C		42		F
HUAN	16	1412		1421	N23	E15	.443	16073	17.7	9	-F	1	C				E
KHAR	16	1440E		1440D	N24	E15	.456	16073	17.7		-F		P				
KHAR	16	1440E		1440D	N22	E16	.458	16073	18.0		-F		P				
GRP75513	16	1348+0	1350+1	1401	S13	W50	.783	16065	12.8	13	-F						D
MCMA	16	1348	1350	1359	S13	W50	.783	16065	12.8	11	-N		C	1350	25	.4	D
KHAR	16	1348E	1351	1403D	S13	W51	.793	16065	12.8	15D	-F		P				D
514 HOLL	16	1508	1514	1518	N23	E16	.451	16073	17.8	10	-N	3	C		26		ZX
515 BIGB	16	1518	1511	1530	N23	E15	.443	16073	17.8	20	-N	2	C	1511	60	.6	ZX
516 MCMA	16	1745	1749	1757	N23	E15	.443	16073	17.9	12	-N		C	1749	30	.3	D ZX
GRP75516	16	1803+4	1810+0	1844	N23	E14	.435	16073	17.8	41	-B				170	1.9	EUZ
MCMA	16	1803	1810	1857	N23	E15	.443	16073	17.9	54	-B		C	1810	125	1.5	E
BIGB	16	1806	1810	1850	N24	E14	.448	16073	17.8	44	-B	2	C	1810	140	1.5	
HOLL	16	1807	1810	1850	N21	E13	.400	16073	17.7	43	1B	3	C		266		Z U
PALE	16	1810E	1810U	1833	N22	E13	.413	16073	17.7	23D	-N	3	C		152		FDE
HUAN	16	1811E		1825	N23	E15	.443	16073	17.9	14D	1N	1	P	1811	180	2.0	E
517 HOLL	16	1806	1806	1814	S12	W55	.831	16065	12.6	8	-N	3	C		16		ZX
GRP75518	16	1832+4	1841>9	1912	S15	W52	.808	16065	12.9	40	-N						
MCMA	16	1832	1841	1915	S14	W52	.806	16065	12.9	43	-N		C	1841	80	1.4	E
BIGB	16	1832	1851	1922	S15	W53	.817	16065	12.8	50	-B	2	C	1851	100	1.7	
HOLL	16	1832	1846	1914D	S15	W55	.836	16065	12.6	42D	-B	3	V		124		F
HUAN	16	1836	1845	1900	S15	W54	.827	16065	12.7	24	-N	1	C	1845	60	1.0	E
PALE	16	1837E	1843U	1919D	S17	W51	.803	16065	13.0	42D	-N	3	C		32		FDE
HOLL	16	1842	1842	1852	S18	W51	.806	16065	13.0	10	-N	3	C		28		F
519 MCMA	16	1937E	1939	1950	N23	E14	.435	16073	17.9	13D	-N		C	1939	25	.3	D ZX
520 MCMA	16	1940	1941	1946	S18	E27	.541	16079	18.8	6	-F		C	1941	35	.4	ZX
521 BIGB	16	2002	2003	2007	N20	W60	.879	16067	12.3	5	-N	2	C	2003	30	.6	ZX
522 CULG	16	2151	2153	2200	N13	W58	.854	16067	12.6	9	-F		C	2153	90	1.9	ZX

Hα SOLAR FLARES

JUNE 1979

OBSERV-ATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS	
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX LON. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY	MIN.		CONF	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.		
GRP75523	16	2218>9	2223+5	2246D	N24	E18	.420	16073	17.7	28	-F				100	1.1		
CULG	16	2218	2234	2321	N24	E10	.420	16073	17.7	63	-F		C	2234	130	1.5		
BIGB	16	2228	2229	2246	N24	E11	.426	16073	17.8	18	-F	2	C	2229	80	.8		
GRF75524	16	2236+8	2247 2255	2346	N14	W63	.895	16067	12.2	70	1B						FJUY	
BIGB	16	2236	2255	2346	N13	W62	.887	16067	12.3	70	2B	2	C	2255	250	5.5		
CULG	16	2236	2247	23210	N15	W64	.904	16067	12.1	450	1B		P	2247	180	4.1	UYFJ	
525 CULG	17	0454	0459	0507	S19	W53	.827	16065	13.2	13	-F		C	0459	40	.7		ZX
526 ABST	17	0648	0659	0704	N06	W25	.429	16078	15.4	16	-F		C	0659	87	1.0	DJ	ZX
527 ISTA	17	0655E		0710	N09	E09	.285	16082	16.0	150	-F		V				E	ZX
GRP75528	17	0715+5		08500	N06	W25	.429	16078	15.4	95	-F						JK	
ISTA	17	0715		0850	N06	W24	.413	16078	15.5	95	-N	*	V				EK	
ABST	17	0720	0857	0944	N06	W26	.444	16078	15.4	144	-F	*	C	0857	175	2.0	FJK	
GRF75529	17	0717+8	0730 0807	0819	N23	E08	.393	16073	17.9	62	-N						EHJKL	
ABST	17	0717	0730	0742	N23	E07	.388	16073	17.8	25	-F		C	0730	96	1.1	DHJ	
ISTA	17	0725		0829	N23	E09	.398	16073	17.8	55	-N		V				EK	
ABST	17	0805E	0807	0816	N23	E06	.383	16073	17.8	130	-N		C	0807	148	1.6	DJL	
530 ABST	17	0827	0838	0834	N09	E08	.193	16082	16.8	7	-F		C	0838	87	.9	DJ	ZX
GRF75531	17	0911	0913 0931	0943	N22	E04	.361	16073	17.7	32	1F						EJ	
ABST	17	0911	0913	0942	N23	E06	.383	16073	17.8	31	1F		C	0913	236	2.6	EJ	
KHAR	17	0923E		09230	N21	E00	.338	16073	17.4	30	-F		P				DT	
KHAR	17	0927	0931	09430	N23	E06	.383	16073	17.8	160	-F		P	0931	45	.5	D	
532 KHAR	17	1000	1003	10080	N21	E00	.338	16073	17.4	80	-F		P	1003			DT	ZX
533 KHAR	17	1000	1011	10320	N06	W26	.444	16078	15.5	320	1N		P	1008	250	3.0	EK	ZX
534 KHAR	17	1037		10470	N06	W26	.444	16078	15.5	100	-N		P	1042			D	ZX
535 KHAR	17	1127E	1127	11300	N08	E06	.157	16082	17.9	30	-F		P				D	ZX
GRF75536	17	1130E	1137	11560	N22	E01	.355	16073	17.6	26	-F							
KHAR	17	1130E		11370	N23	E05	.388	16073	17.9	70	-F		P				D	
KHAR	17	1133E	1137	11500	N21	W01	.339	16073	17.4	170	-F		P				DT	
KHAR	17	1133E	1137	11430	N23	E03	.374	16073	17.7	100	-F		P				D	
KHAR	17	1146E		11560	N23	W01	.371	16073	17.4	180	-F		P	1150	50	.5	D	
537 KHAR	17	1144E	1146	12000	S17	W52	.813	16065	13.6	160	-F		P	1150	90	1.6	DH	ZX
538 KHAR	17 IMP.1	1145E NO	1154 RAPY	12000	N06	W26	.444	16078	15.5	150	?F		V	1154			E	ZX
539 RAMY	17	1222	1223	1225	N20	E07	.342	16073	18.0	3	-B	3	C		31			ZX
GRF75540	17	1500>9	1513+3	1527	S31	E90	1.000	0	24.4	27	-F							
MCMA	17	1500E	1513	15300	S31	E90	1.000	0	24.4	300	-F		C	1513				
BIGB	17	1512	1516	1523	S31	E90	1.000	0	24.4	11	-N	2	C	1516	58			
GRP75541	17	1546	1555	1621	S13	W64	.906	16065	12.9	35	-N						D	
BIGB	17	1546	1555	1621	S13	W64	.906	16065	12.9	35	-N	2	C	1555	48	.9		
MCMA	17	1604E		16110	S13	W65	.913	16065	12.8	70	-F		P	1607	38	.7	D	
GRP75542	17	1604+2	1608	1642	N06	W30	.505	16078	15.4	38	-N				68	.7	E	
MCMA	17	1604E		16430	N07	W30	.507	16078	15.4	390	-N		C	1607	80	.9	E	
BIGB	17	1606	1608	1641	N06	W30	.505	16078	15.4	35	-N	2	C	1608	40	.5		
543 BIGB	17	1748	1749	1803	S17	W70	.947	16065	12.5	15	-B	2	C	1749	50			ZX
GRF75544	17	1847+1	1853+0	1907	N22	00	.355	16073	17.8	20	-B				100	1.1		
BIGB	17	1847	1853	1908	N23	E01	.371	16073	17.9	21	-B	2	C	1853	90	.9		
HOLL	17	1848	1853	1906	N22	E00	.355	16073	17.8	18	-B	3	C		112			
GRF75545	18	0623	0624+3	0634	S17	W65	.918	16065	13.4	11	1N				140		DV	
ABST	18	0623	0624	0632	S17	W66	.924	16065	13.3	9	1N		C	0624	175	4.1	DV	
ATHN	18	0625E	0627	0636	S18	W64	.912	16065	13.5	110	1N	1		0627	114	2.9		

Hα SOLAR FLARES

JUNE 1979

OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IMPOR-TANCE	OBS.		MEASUREMENTS			REMARKS	
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY	MIN.		CONG	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.		
546 ABST	18	0655	0657	0659	N14	E10	.277	16076	19.0	4	-F		C	0657	70	.7	D	ZX
547 ABST	18	0709	0711	0720	N21	W10	.374	16073	17.5	11	-F		C	0711	87	1.0	DJ	ZX
548 ABST	18	0735	0737	0750D	N30	W81	.989	16064	12.2	15D	?F		P	0737	79		AD	ZX
	IMP.1 NO I MITK MONT																	
549 HOLL	18	1613	1624	1630	S06	E75	.967	16088	24.3	17	-N	3	C					ZX
550 BIGB	18	1630	1632	1644	N07	E45	.710	0	22.1	14	-N	2	C	1632	58	.7		ZX
GRF75551	18	1811+0	1812+1	1829	S16	W72	.957	16065	13.4	18	-N						E	
MCMA	18	1811	1813	1828	S20	W73	.964	16065	13.3	17	-N		C	1813			E	
HOLL	18	1811	1812	1830	S13	W71	.950	16065	13.4	19	-B	3	C		78			
552 HOLL	18	1813	1813	1820	S06	E74	.962	16088	24.3	7	-N	3	C					ZX
553 HOLL	18	1842	1846	1854	S06	E74	.962	16088	24.3	12	-N	3	C					ZX
554 MCMA	18	2018	2020	2041	N22	W17	.446	16073	17.6	23	-N		C	2020	25	.3	D	ZX
GRF75555	18	2040+9	2049+2	2057	N08	W12	.236	16082	18.0	17	-N				70	.7	EJ	
HOLL	18	2040	2050	2130	N09	W13	.259	16082	17.9	50	-B	3	C		94		F	
MCMA	18	2045	2051	2056	N08	W10	.208	16082	18.1	13	-N		C	2051	50	.5	E	
VORO	18	2046	2049	2055	N08	W12	.236	16082	18.0	9	-N		C	2049	99	1.0	EJ	
BIGB	18	2047	2049	2057	N08	W12	.236	16082	18.0	10	-N	2	C	2049	70	.7		
HUAN	18	2049		2053	N07	W13	.244	16082	17.9	4	-F	1	C	2050	40	.4	E	
GRF75556	18	2050+6	2058+4	2134	N22	W15	.427	16073	17.7	44	1N				270	3.0	EJU	
HOLL	18	2050	2054	2156	N22	W14	.418	16073	17.8	66	1B	3	C		360		U F	
MCMA	18	2051	2102	21190	N22	W15	.427	16073	17.7	28D	-B		C	2102	150	1.6	E	
RAMY	18	2052E	2059U	21040	N23	W15	.440	16073	17.7	12D	1B	3	C		280		U F	
VORO	18	2054	2100	2123	N22	W15	.427	16073	17.7	29	1F		C	2101	385	4.3	EJ	
HUAN	18	2055	2100	2121	N22	W15	.427	16073	17.7	26	1N	1	C	2100	200	2.2	E	
BIGB	18	2056	2100	2145	N22	W15	.427	16073	17.7	49	1B	2	C	2100	240	2.5		
557 HOLL	18	2102	2103	2108	S13	W72	.955	16065	13.5	6	-N	3	C					ZX
558 HOLL	18	2132	2134	2146	N09	W13	.259	16082	17.9	14	-N	3	C		29			ZX
GRF75559	18	2354+1	2355+2	0003	S06	E69	.935	16088	24.2	9	-N				78		D	
VORO	18	2354	2355	2357	S07	E68	.929	16088	24.1	3	-N		C	2355	63		D	
HOLL	18	2355	2357	0009	S06	E70	.941	16088	24.2	14	-N	3	C		80			
560 VORO	19	0021	0022	0027	N22	W14	.417	16073	18.0	6	-N		C	0022	90	1.0	EJ	ZX
GRF75561	19	0042+1	0043+2	0052	S18	W77	.979	16065	13.3	10	-F				38		D	
VORO	19	0042	0043	0046	S20	W80	.988	16065	13.0	4	-F		C	0043	36		D	
HOLL	19	0043	0045	0052	S18	W76	.975	16065	13.3	9	-N	3	C					
MANI	19	0046E	0046U	0055D	S18	W77	.979	16065	13.3	9D	-N	2	V		20			
MANI	19	0046E	0046U	0055D	S18	W77	.979	16065	13.3	9D	-F	2	P		20	.5		
GRF75562	19	0042+5	0048+2	0105	S06	E69	.935	16088	24.2	23	-N				70			
HOLL	19	0042	0050	0106	S05	E69	.935	16088	24.2	24	-B	*	C		85			
VORO	19	0047	0049	0051	S07	E68	.930	16088	24.1	4	-N	*	C	0048	54		D	
PALE	19	0103E	0103U	0105D	S06	E74	.962	16088	24.6	2D	-N	*	C		41		F	
	19	0306	0502	NO FLARE PATROL														
563 ABST	19	0518	0521	0527	N24	W18	.477	16073	17.9	9	-F		C	0521	140	1.6	EJ	ZX
GRF75564	19	0607+1	0609	0617	N26	E02	.416	16091	19.4	10	-N							
ABST	19	0607	0609	0621	N27	E04	.435	16091	19.6	14	-N		C	0609	87	1.0	D	
ISTA	19	0608		0613	N26	E01	.415	16091	19.3	5	-B		V				E	
565 MONT	19	0732	0734	0738	N23	W19	.475	16073	17.9	6	-F		C	0734	50		E	ZX
GRF75566	19	0754+3	0804+1	0813	S07	E65	.909	16088	24.2	19	-F				50	1.2		
MONT	19	0754	0804	0814	S06	E63	.894	16088	24.1	20	-F		C	0804	50		E	
HTPR	19	0802	0805	0812	S08	E65	.910	16088	24.2	10	-F		C	0805	30	.6		
ABST	19	0802	0804	0807D	S07	E65	.909	16088	24.2	5D	1F		P	0804	96	2.3	D	
GRF75567	19	1306+4	1310+0	1322	N22	W22	.495	16073	17.9	16	-N				80	.9	E	
HTPR	19	1306	1310	1320	N23	W22	.505	16073	17.9	14	-B		C	1310	90	1.0	E	
MCMA	19	1306	1310	1324	N22	W23	.506	16073	17.8	18	-B		C	1310	60	.7	E	
HUAN	19	1309		1316	N22	W22	.495	16073	17.9	7	-F	1	C				E	
HOLL	19	1310	1310	1326	N22	W23	.506	16073	17.8	16	-B	3	C		91			

Hα SOLAR FLARES

JUNE 1979

OBSERV-ATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS	
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY	MIN.		CONG	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.		
568 HUAN	19	1313	1315	1324	N10	W90	1.000	16067	12.8	11	-F	1	C	1315	25		D	ZX
569 HOLL	19	1643	1644	1649	S05	E59	.860	16088	24.1	6	-N	3	C		27			ZX
570 BIGB	19	1726	1728	1737	S25	E26	.595	16083	21.7	11	-N	1	C	1726	40	.5	K	ZX
571 BIGB	19	1756	1757	1816	S23	E24	.557	16083	21.5	20	-N	1	C	1757	50	.6		ZX
572 BIGB	19	1835	1836	1842	S25	E26	.595	16083	21.7	7	-N	1	C	1836	40	.5	K	ZX
573 BIGB	19	2005	2006	2012	S25	E26	.595	16083	21.8	7	-B	1	C	2006	40	.5	K	ZX
574 HOLL	19	2038	2038	2053	S05	E59	.860	16088	24.3	15	-N	3	C		16			ZX
575 BIGB	19	2119	2120	2142	S28	E55	.869	16101	24.8	23	-N	1	C	2120	50	.9		ZX
GRP75576	19	2237+1	2238+0	2247	S21	E34	.645	16085	22.5	10	-B				15	.2	D	
BIGB	19	2237	2238	2247	S22	E33	.641	16085	22.4	10	-B	2	C	2238	10	.1	D	
HOLL	19	2238	2238	2247	S20	E36	.668	16085	22.6	9	-B	3	C		22			
577 ABST	20	0455E	0458	05080	S22	E32	.631	16085	22.6	50	-F		P	0458	140	1.9	DJ	ZX
578 ABST	20	0456	0459	05080	N23	W37	.666	16073	17.4	40	-F		P	0459	79	1.1	D	ZX
579 TELV	20	0933	0938	0950	N22	W19	.462	16091	19.0	17	-F	1	C		163	1.7		ZX
GRP75580	20	1041	1044+3	1056	N07	W35	.578	16082	17.8	15	-F						E	
HTPR	20	1041	1044	1054	N07	W36	.592	16082	17.7	13	-F		C	1044	10	.1		
KHAR	20	1043E	1047	10570	N08	W34	.566	16082	17.9	140	-F		P				E	
581 KHAR	20	1117E	1117	11230	S25	E29	.625	16085	22.6	60	-F		P				D	ZX
582 KHAR	20	1130E		11370	N08	W36	.594	16082	17.8	70	-F		P				D	ZX
583 MCMA	20	1306	1309	1328	S23	E28	.598	16085	22.6	20	-F		C	1309	30	.4	D	ZX
584 HOLL	20	1319	1319	1324	S07	E48	.751	16088	24.2	5	-N	3	C		23			ZX
585 MCMA	20	1401	1404	14100	S23	E28	.598	16085	22.7	90	-N		C	1404	20	.3	D	ZX
586 HOLL	20	1433	1435	1502	N07	W37	.606	16082	17.8	29	-N	3	C		26			ZX
587 MCMA	20	1605	1608	16110	S07	E46	.728	16088	24.1	60	-N		C	1608	20	.3	D	ZX
588 HOLL	20	1755	1756	1810	S21	E25	.549	16085	22.6	15	-B	4	C		29			ZX
589 HOLL	20	1910	1911	1921	N07	W39	.633	16082	17.9	11	-N	4	C		27			ZX
590 HUAN	20	2006	2006	2009	S25	E25	.587	16085	22.7	3	-F	1	C	2006	15	1.6	D	ZX
591 HOLL	20	2107	2108	2116	S23	E22	.539	16085	22.5	9	-N	3	C		38			ZX
592 HOLL	21	0041	0041	0050	N07	W41	.659	16082	18.0	9	-N	3	C		25			ZX
GRP75593	21	0150+1	0152+4	0228	S29	E52	.852	16089	25.0	38	-F				60	1.1	HJ	
VORO	21	0150	0152	02000	S30	E52	.855	16089	25.0	180	-F		C	0153	45	.8	EJ	
PALE	21	0151	0156	0228	S29	E52	.852	16089	25.0	37	-N	3	C		81		F H	
GRP75594	21	0219+0	0223+5	0235	S08	E41	.669	16088	24.2	16	-N						EHJS	
VORO	21	0219	0223	0235	S08	E43	.694	16088	24.3	16	-F		C	0223	90	1.2	EHJ	
PALE	21	0219	0228	02320	S08	E40	.657	16088	24.1	130	1B	3	C		272		DE S	
GRP75595	21	0643+1	0652+2	0709	S24	E15	.493	16085	22.4	26	-F						EJ	
HTPR	21	0643	0652	0715	S24	E15	.493	16085	22.4	32	-F		C	0652	20	.2	E	
ABST	21	0644	0654	0703	S24	E15	.493	16085	22.4	19	-F		C	0654	122	1.4	EJ	
GRP75596	21	0741+1	0743	0748	N19	W51	.797	16073	17.5	7	-F						DJ	
ABST	21	0741	0743	0750	N20	W52	.809	16073	17.4	9	-F		C	0743	70	1.2	DJ	
ISTA	21	0742		0746	N19	W50	.787	16073	17.6	4	-N		V				D	
597 ABST	21	0755	0757	0800	S23	E15	.488	16085	22.5	5	-F		C	0757	61	.7	DJ	ZX
598 ISTA	21	0830		0834	S24	E22	.551	16085	23.0	4	-F		V				D	ZX
599 ABST	21	0950	0958	10040	N21	E24	.585	16086	23.2	140	-F		P	0958	87	1.0	D	ZX
600 ABST	21	0955	0957	10040	S25	E10	.476	16085	22.2	90	-F		P	0957	114	1.3	EJ	ZX

Hα SOLAR FLARES

JUNE 1979

OBSERV-ATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY	MIN.		COND	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.	
601 KHAR	21	1017E		1037D	S25	E18	.476	16085	22.2	20D	-F		P				ZX
	21	1249	1259	NO FLARE PATROL													
	21	1301	1311	NO FLARE PATROL													
GRF75602	21	1607+4	1610+2	1617	N21	W56	.846	16073	17.5	10	-N				20	.4	D
BIGB	21	1607	1610	1617	N21	W56	.846	16073	17.5	10	-N	2	C	1610	20	.4	
MCMA	21	1607	1612	1617	N21	W56	.846	16073	17.5	10	-N		C	1612	25	.5	D
HUAN	21	1611	1611	1616	N20	W57	.853	16073	17.4	5	-F	1	C	1611	20	.3	D
GRF75603	21	1819+1	1836+2	1858	S29	E43	.781	16089	25.0	39	-B				70	1.1	
HOLL	21	1819	1836	1852	S28	E43	.775	16089	25.0	33	-B	3	C		69		F
BIGB	21	1820	1837	1903	S29	E44	.789	16089	25.1	43	-B	2	C	1837	80	1.1	
PALE	21	1837	1838	18490	S29	E43	.781	16089	25.0	120	-N	3	C		32		FDE
604 HOLL	21	2124	2129	2134	N07	W86	.997	16078	15.4	10	-N	3	C				ZX
	21	2141	2149	NO FLARE PATROL													
605 BIGB	22	0017	0019	0023	N24	W64	.911	16073	17.2	6	-N	2	C	0019	20	.5	ZX
	22	0146	0157	NO FLARE PATROL													
GRF75606	22	0446	0455+1	0530	N24	W59	.876	16073	17.8	44	2N				250	5.3	FJ
TACH	22	0446	0456	0525	N24	W58	.868	16073	17.8	39	2N		C	0456	248	5.2	EJ
ABST	22	0455E	0455	0724	N24	W61	.890	16073	17.6	149D	2N		P	0455	288		BF
MANI	22	0455E	0455U	0530D	N22	W59	.872	16073	17.8	35D	-B	3	V		80		F
MANI	22	0455E	0455U	0530D	N22	W59	.872	16073	17.8	35D	-N	3	V		80	1.5	F
GRF75607	22	0527	0539 8620	0702	N27	W54	.843	16073	18.2	95	-F						D
ABST	22	0527	0539	0649	N30	W51	.829	16073	18.4	82	-F		C	0539	87	1.5	D
CATA	22	0605E	0620	0715D	N25	W58	.878	16073	17.9	70D	-N	2	P	0620	84	1.7	
GRF75608	22	1015+1	1019+1	1026	S29	E37	.731	16089	25.2	13	-F				60	.9	E
CATA	22	1015	1020	1030	S29	E37	.731	16089	25.2	15	-N	2	C	1020	84	1.2	
MONT	22	1016	1019	1026	S29	E37	.731	16089	25.2	10	-F		C	1019	50		E
GRF75609	22	1052	1059	1107	S07	E23	.416	16088	24.2	15	-N						
MONT	22	1052	1058	1106	S07	E23	.416	16088	24.2	14	-N		C	1058	70		
KANZ	22	1059E	1059	1107	S08	E23	.422	16088	24.2	8D	-F	1					
610 TELV	22	1111	1115	1118D	S20	E37	.673	0	25.2	7D	?B	3	C		490	6.3	U ZX
	IMP.2 NC ? MONT CATA																
611 TELV	22	1126E	1142	1236	S21	E37	.679	0	25.3	70D	?N	3	C		367	4.7	U ZX
	IMP.1 NO ? MONT CATA																
	22	1300	1302	NO FLARE PATROL													
GRF75612	22	1459+1	1500+1	1516	S07	E20	.372	16088	24.1	17	-F				30	.3	
BIGB	22	1459	1500	1522	S08	E20	.378	16088	24.1	23	-F	2	C	1500	30	.3	
HOLL	22	1500	1501	1509	S06	E20	.366	16088	24.1	9	-N	3	C		30		
613 HOLL	22	1630	1642	1653D	S19	W01	.356	16085	22.6	23D	-N	3	C		41		F ZX
614 BIGB	22	1654	1700	1753	S09	E00	.188	0	22.7	59	-F	2	C	1700	50	.5	ZX
615 BIGB	22	1849	1850	1906	S27	E32	.672	16089	25.2	17	-N	2	C	1850	30	.4	ZX
GRF75616	22	2237+1	2239+1	2255	S19	W04	.361	16085	22.6	18	-F				50	.5	F
CULG	22	2237	2240	2259	S19	W05	.365	16085	22.6	22	-N		C	2240	70	.8	F
BIGB	22	2238	2239	2251	S20	W04	.377	16085	22.6	13	-F	2	C	2239	30	.3	
617 CULG	22	2241	2245	2305	N25	W80	.985	16073	16.9	24	?F		C	2245	100		ZX
	IMP.1 NO ? BIGB PALE																
618 CULG	22	2313	2320	2328	S28	E26	.628	16089	24.9	15	-F		C	2320	50	.7	ZX
GRF75619	23	0029+1	0032+0	0037	S11	E57	.849	16100	27.3	8	-F				35	.7	E
VORO	23	0029	0032	0036	S12	E59	.868	16100	27.4	7	-F		C	0032	45	.9	E
CULG	23	0030	0032	0038	S10	E55	.829	16100	27.1	8	-F		C	0032	20	.4	T
GRF75620	23	0056+2	0100+4	0108	S11	E59	.867	16100	27.5	10	-F				20	.4	E
VORO	23	0058	0100	0109	S12	E59	.868	16100	27.5	11	-F		C	0100	72	1.4	E
HOLL	23	0100	0104	0106	S11	E57	.849	16100	27.3	6	-N	2	C		18		
CULG	23	0100	0102	0108	S10	E53	.865	16100	27.5	8	-F		C	0102	20	.4	T

Hα SOLAR FLARES

JUNE 1979

OBSERV-ATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS	
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX LONG. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Millionths of Disk	CORR AREA Sq. Deg.		
621 CULG	23	0131	0138	0210	S34	E60	.919	0	27.6	39	?F		C	0136	220	5.1	SG	ZX
	IMP.1 NO 1 VORO MITK																	
622 CULG	23	0204	0207	0222	S28	E01	.374	16085	23.2	18	-F		C	0207	20	.3		ZX
623 CULG	23	0220	0223	0240	S10	E57	.848	16100	27.4	20	-F		C	0223	30	.6	KT	ZX
624 CULG	23	0257	0301	0400	S28	E25	.621	16089	25.8	63	?N		C	0301	100	2.4	U	ZX
	IMP.1 NO 1 MITK																	
625 CULG	23	0343	0344	0354	S20	E01	.374	16085	23.2	11	-N		C	0344	30	.4		ZX
626 CULG	23	0352	0403	0508	S29	W07	.391	16085	22.6	68	1N		C	0403	190	2.2	F	ZX
627 TELV	23	0832	0835	0841	N17	E35	.609	16093	26.8	9	-N	2	C		80	1.8		ZX
628 KHAR	23	0907E		0940D	N37	E63	.924	0	28.1	33D	-F		P	0910	50		D	ZX
629 KHAR	23	0948E		1025D	S17	E67	.932	16100	28.4	37D	-F		V	1012				ZX
630 TELV	23	1026	1027	1042	N18	E33	.598	16093	25.9	16	-N	2	C		80	.9		ZX
GRF75631	23	1130	1142 1153	1226	N19	E33	.595	16093	26.8	56	?N							
TELV	23	1138	1142	1226	N21	E35	.630	16093	26.1	56	?N	2	C		245	3.8		
	IMP.1 NO 1 HTPR																	
TELV	23	1149	1153	1159	N18	E32	.577	16093	25.9	10	-F	2	C		25	.3		
632 KHAR	23	1233E		1250D	N10	W39	.637	16092	28.6	17D	-F		P					ZX
633 HTPR	23	1411	1523	1545	S31	E21	.623	16089	25.2	94	-F		C	1423	20	.2	E	ZX
GRF75634	23	1727+7	1737+2	1807	S19	W14	.424	16085	22.7	40	-B				45	.5	F	
HOLL	23	1727	1737	1806	S19	W15	.432	16085	22.6	39	-B	3	C		44		F	
BIGB	23	1734	1739	1807	S19	W14	.424	16085	22.7	33	-B	2	C	1739	40	.4		
635 CULG	23	2355	2357	0012	N08	E32	.536	16093	26.4	17	-F		C	2357	30	.4		ZX
GRF75636	24	0018+5	0024+0	0032	S25	W23	.574	16085	22.3	14	-N				140	1.7	E	
CULG	24	0018	0024	0035	S25	W25	.592	16085	22.1	17	-N		C	0024	100	1.3		
VORO	24	0023	0024	0028	S26	W22	.577	16085	22.4	5	1F		C	0024	179	2.3	E	
637 CULG	24	0407	0524	0617D	N15	W50	.777	16092	28.4	130D	?N		C	0524	230	4.8	SFI	ZX
	IMP.1 NO 1 MITK			WEND														
GRF75638	24	0437>9	0500	0521	N14	E90	1.000	16104	30.9	44	-B						AH	
CULG	24	0446	0451	0510	S06	W03	.150	16104	24.8	24	1N		C	0451	300	3.1		
ISTA	24	0447		0550	S08	E01	.178	16104	24.3	63	-N		V				E	
GRF75639	24	0446+1	0451	0510D	S07	W01	.158	16088	24.1	24	-N						E	
ISTA	24	0437E		0510	N14	E90	1.000	16088	30.9	33D	1B	*	V				H	
CULG	24	0456	0500	0532	N14	E90	1.000	16088	1.8	36	-N	*	C	0500	20		H	
GRF75640	24	0518>9	0522	0554	N18	W17	.392	16086	22.9	36	-F						D	
CULG	24	0518	0522	0557	N19	W18	.414	16086	22.9	39	-F		C	0522	50	.5		
ISTA	24	0528		0550	N18	W17	.392	16086	23.0	22	-N		V				D	
641 TELV	24	0750	0757	0834	N22	E88	.999	16104	30.9	44	-N	2	C		30			ZX
642 KANZ	24	0926	0933	0958	N16	E80	.984	16104	30.4	24	-N	2						ZX
643 KHAR	24	0940E		0945D	S27	W26	.621	16085	22.5	5D	-F		V	0940			H	ZX
644 KANZ	24	1120	1120	1132	S03	W09	.179	16083	23.8	12	-F	2						ZX
645 KANZ	24	1258	1317	1351	N16	E90	1.000	16104	1.3	53	-N	2						ZX
GRF75646	24	1445+4	1451+1	1502	S26	W30	.647	16085	22.4	17	-N						F	
KANZ	24	1445	1452	1503	S26	W33	.675	16085	22.1	18	-N	2						
HOLL	24	1449	1451	1500	S26	W28	.629	16085	22.5	11	-N	3	C		32		F	
GRF75647	24	1602+2	1604+2	1611	N14	E85	.996	16104	0.0	9	-F						E	
HOMA	24	1602	1605	1611	N14	E85	.996	16104	1.0	9	-F		C	1605			E	
KANZ	24	1603	1606	1618	N12	E83	.992	16104	30.9	15	-F	1						
HOLL	24	1604	1604	1609	N15	E86	.997	16104	1.1	5	-F	3	C					
648 KANZ	24	1622	1626	1641	N22	E86	.355	16106	25.1	19	-F	2						ZX

Hα SOLAR FLARES

JUNE 1979

OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX LONG. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY	MIN.		CONF.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.	
643 HOLL	24	1629	1630	1638	S24	W27	.602	16085	22.7	9	-N	3	C		42		ZX
GR?75650	24	1630+6	1637+1	1644	S03	W12	.225	16088	23.8	14	-N				50	.5	
HOLL	24	1630	1637	1643	S06	W08	.197	16088	24.1	13	-B	*	C		72		F
KANZ	24	1630	1636	1649	S03	W13	.241	16088	23.7	19	-B	*					
MCMA	24	1632	1638	1644	S03	W13	.241	16088	23.7	12	-N	*	C	1638	35	.4	E
BIGB	24	1636	1637	1643	S04	W11	.217	16088	23.9	7	-N	*	C	1637	30	.3	
651 HUAN	24	1631		1641	N15	E90	1.000	16104	1.4	10	-F	1	C				ZX
652 BIGB	24	1939	1939	1943	N17	E90	1.000	16104	1.6	5	-N	2	C	1939	30		ZX
653 BIGB	24	2128	2129	2143	S03	W15	.273	16088	23.8	15	-B	2	C	2129	30	.3	ZX
654 CULG	24	2233E	2233	2235	S24	W31	.641	16085	22.6	20	-N		P	2233	60	.8	L ZX
655 CULG	24	2313	2325	2353	N18	W27	.514	16086	22.9	40	-F		C	2325	110	1.3	ZX
656 BIGB	24	2314	2316	2326	N22	E03	.345	16106	25.2	12	-F	2	C	2316	30	.3	G ZX
657 CULG	24	2325	2328	2334	N32	W21	.586	0	23.4	9	-F	*	C	2328	20	.3	ZX
658 CULG	25	0041	0059	0118	N24	E57	.859	0	29.3	37	-F		C	0059	20	.4	ZX
659 CULG	25	0100	0110	0125	N13	W43	.693	16102	21.8	25	?N		C	0110	190	2.7	HF ZX
	IMP.1 NO 1 BIGB																
660 CULG	25	0105	0118	0133	N20	W69	.931	16092	19.9	28	-F		C	0118	40		G ZX
661 CULG	25	0106	0113	0146	N02	W41	.656	0	22.0	40	-F	*	C	0113	40	.5	G ZX
662 CULG	25	0124	0136	0300	N20	E88	.999	16104	1.7	96	2N		C	0136	180		T ZX
663 CULG	25	0137	0143	0154	S28	E36	.736	0	27.9	17	-N		C	0143	40	.6	ZX
664 CULG	25	0217	0219	0258	S04	W18	.326	16088	23.7	41	-B		C	0219	120	1.2	ZX
665 CULG	25	0409	0416	0450	S05	W16	.301	16088	24.0	41	1N		C	0416	320	3.5	FL ZX
666 CULG	25	0423	0426	0433	S19	W59	.873	0	28.8	10	-F		C	0426	20	.4	ZX
667 CULG	25	0558	0602	0618D	S04	W20	.357	16088	23.7	200	-N		P	0602	170	1.8	H ZX
668 ABST	25	0608E	0615	0621	N15	W90	1.000	16086	18.5	130	1F		P	0615	87		ADJ ZX
669 ABST	25	0608E	0615	0734	N18	W32	.576	16076	22.9	360	?F		P	0615	87	1.1	DJK ZX
	IMP.1 NO 1 CULG KIEV CATA																
670 ABST	25	0718	0723	0737	N10	E06	.171	16093	25.8	19	-F		C	0723	87	.9	DJ ZX
GR?75671	25	0816+1	0827+1	0847	N09	E13	.252	16093	26.3	31	-F						E
KANZ	25	0816	0828	0828D	N08	E13	.245	16093	26.3	120	-F	1					
MONT	25	0817	0827	0847	N11	E13	.269	16093	26.3	30	-F		C	0827	60		E
672 TELV	25	0913	0919	0934	N28	E66	.926	0	30.3	21	-N	2	C		80		ZX
	25	1150	1158	NO FLARE PATROL													
GR?75673	25	1605>9	1618+1	1633	S26	W46	.794	16085	22.2	28	-F				50	.8	E
MCMA	25	1605E	1619	1635	S26	W46	.794	16085	22.2	300	-F		C	1618	60	1.1	E
BIGB	25	1615	1619	1631	S27	W47	.807	16085	22.2	16	-N	2	C	1619	48	.6	
GR?75674	25	1807+1	1809+2	1831	S03	W27	.461	16088	23.7	24	-F				25	.3	D
MCMA	25	1807	1811	1830D	S03	W27	.461	16088	23.7	230	-F		C	1811	25	.3	D
BIGB	25	1808	1809	1831	S04	W27	.465	16088	23.7	23	-N	2	C	1809	20	.2	
675 HOLL	25	1927	1927	1939	S23	W41	.734	16085	22.7	12	-B	3	C		21		ZX
676 HOLL	25	2002	2003	2009	S23	W41	.734	16085	22.8	7	-N	3	C		28		ZX
677 MCMA	25	2037	2038	2043	N16	E65	.909	16104	30.7	6	-F		C	2038	30	.7	E ZX
678 HOLL	25	2206	2208	2216	S12	E19	.400	16100	27.3	10	-N	3	C		21		ZX
679 CULG	25	2356	2400	0020	N11	E03	.162	16093	26.2	24	-N		C	2400	48	.4	ZX

Hα SOLAR FLARES

JUNE 1979

OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IMPOR-TANCE	OBS		MEASUREMENTS			REMARKS	
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX LONG. DIST.	CENTRAL DISTANCE	HELIOGRAPH PLAGE REGION	CMP. DAY	MIN.		CONG	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.		
GRF75680	26	0021+5	0026+3	0034	N12	E64	.908	16104	30.8	13	-F				30	.7	F	
CULG	26	0021	0029	0036	N11	E63	.892	16104	30.7	15	-F		C	0029	40	1.0		
HOLL	26	0026	0026	0032	N14	E66	.915	16104	1.0	6	-N	3	C		15		F	
681 CULG	26	0126	0129	0140	N26	E25	.556	16098	27.9	14	-N		C	0129	70	.9		ZX
682 CULG	26	0422	0432	0445	N12	E69	.934	16104	1.4	23	-F		C	0432	40		H	ZX
683 CULG	26	0445	0449	0515	N23	W14	.419	16106	25.1	30	-N		C	0449	70	.8		ZX
GRF75684	26	0703+2	0708+4 0729	0738	N16	E67	.922	16104	.3	35	1N				90		J	
HTPR	26	0703	0708	0740	N28	E62	.891	16104	30.9	37	-N		C	0708	40	.8		
CATA	26	0705	0710	0745	N18	E65	.918	16104	1.2	40	-B	2	C	0710	56			
BUCA	26	0705		0734	N17	E68	.929	16104	1.4	29	1N		C	0707	107		E	
HTPR	26	0705	0708	0725	N14	E62	.885	16104	30.9	20	-N		C	0708	20	.4		
ISTA	26	0708E		0730	N19	E70	.942	16104	1.5	22D	3B		V				F	
MONT	26	0709E	0712	0731	N16	E66	.916	16104	1.2	22D	-N		C	0712	80			
CATA	26	0710	0710	0730	N13	E63	.893	16104	1.0	20	-N	2	C	0710	39	.9		
ABST	26	0728E	0729	0748D	N12	E73	.956	16104	1.8	20D	1F		P	0729	87		DJ	
GRF75685	26	0712+4	0720 0741	0804	S25	W47	.739	16085	22.8	52	-N				90	1.5	JK	
HTPR	26	0712	0720	0818	S25	W43	.764	16085	23.1	58	-N		C	0720	30	.3	E	
MONT	26	0714	0741	0801	S25	W46	.791	16085	22.9	47	-F		C	0741	50		E	
ISTA	26	0715E		0800	S26	W47	.804	16085	22.8	45D	1B		V				D	
BUCA	26	0716		0745	S28	W48	.820	16085	22.7	29	-F		C	0723	85	1.4		
ABST	26	0728E	0728	0838D	S24	W49	.813	16085	22.6	70D	-N		P	0728	87	1.5	DJK	
686 ABST	26	0743	0754	0802	S17	E29	.566	16100	28.5	19	-F		C	0754	131	1.6	FJ	ZX
687 ABST	26	0827	0832	0838D	N17	E78	.941	16104	1.6	11D	?F		P	0832	131		DJ	ZX
	IMP.1 NO 1 HTPR MONT KIEV CATA																	
GRF75688	26	1018+4	1020+5	1036	N12	W62	.884	16102	21.8	18	-N				80	1.7	E	
HTPR	26	1018	1020	1028	N12	W62	.884	16102	21.8	10	-N		C	1020	50	1.0	E	
CATA	26	1020	1025	1033	N12	W62	.884	16102	21.8	13	-B	2	C	1025	64	1.8		
ATHN	26	1022	1024	1038	N13	W61	.877	16102	21.9	16	-N	1		1024	98	1.8		
KHAR	26	1024E		1100D	N08	W63	.891	16102	21.7	36D	1N		P	1032	250			
689 HOLL	26	1507	1507	1512	N11	W65	.907	16102	21.8	5	-N	4	C		20			ZX
GRF75690	26	1540+4	1544+1	1553	N10	W66	.913	16102	21.7	13	-N				30			
MCMA	26	1540	1545	1558	N11	W66	.914	16102	21.7	18	-F		C	1545	35	.9	E	
BIGB	26	1541	1544	1550	N10	W67	.920	16102	21.6	9	-B	1	C	1544	20			
HOLL	26	1543	1545	1556	N11	W65	.907	16102	21.8	13	-B	4	C		25			
HUAN	26	1544		1549	N10	W67	.920	16102	21.6	5	-F	1	C	1547	25		D	
GRP75691	26	1645+1	1646+1	1655	N19	W50	.784	16086	22.9	10	-N				30	.5	D	
BIGB	26	1645	1647	1657	N19	W50	.784	16086	22.9	12	-N	1	C	1647	40	.6		
MCMA	26	1646	1647	1655D	N22	W48	.773	16086	23.1	9D	-N		C	1647	20	.3	D	
HOLL	26	1646	1646	1658	N18	W58	.782	16086	22.9	4	-B	3	C		21			
GRP75692	26	1645+2	1647+1	1658	N10	W66	.913	16102	21.7	13	-B				25			
BIGB	26	1645	1647	1702	N10	W67	.928	16102	21.7	17	-B	*	C	1647	30			
HOLL	26	1647	1648	1654	N11	W66	.914	16102	21.7	7	-B	*	C		16			
693 BIGB	26	1757	1758	1808	S28	W70	.959	16107	21.5	11	-B	1	C	1758	20			ZX
GRP75694	26	2039+1	2041+2 2050+3	2128	N10	W67	.928	16102	21.8	49	-N				50		FU	
BIGB	26	2039	2050	2144	N10	W67	.920	16102	21.8	65	-B	1	C	2050	60			
MCMA	26	2040E	2043	2058D	N11	W68	.927	16102	21.8	18D	-F		C	2043	50	1.4	E	
HOLL	26	2040	2041	2128	N10	W70	.939	16102	21.6	48	-B	3	C		26		U F	
HOLL	26	2040	2053	2128	N10	W70	.939	16102	21.6	48	-N	3	C		51		U F	
PALE	26	2056	2059	2107	N10	W66	.913	16102	21.9	11	-N	3	C		16		F	
695 HOLL	26	2337	2337	2348	N11	W69	.933	16102	21.8	11	-B	3	C		14			ZX
	27	0102	0151	NO FLARE PATROL														
696 PURP	27	0103E	0103U	0147	N14	W12	.285	16093	26.1	44D	1B							ZX
697 PURP	27	0113	0115	0125	S13	E04	.274	16100	27.4	12	1B							ZX
	27	0201	0212	NO FLARE PATROL														
	27	0242	0254	NO FLARE PATROL														

Hα SOLAR FLARES

JUNE 1979

OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IMPOR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY	MIN.		CONF.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.	
GRF75695	27	0831+0	0834+1	0849	N17	E75	.966	16108	2.8	18	-F				50		
MONT	27	0831	0834	0846	N17	E77	.974	16108	3.1	15	-F		C	0834	50		D
KANZ	27	0831	0835	0852	N16	E75	.966	16108	3.8	21	-F	1					
HTPR	27	0833E		0849	N17	E72	.952	16108	2.8	16D	-F		C	0840	60		BE
699 KHAR	27	0937E		0937D	N08	W77	.974	16102	21.6		-F		P				ZX
700 ABST	27	0952E	0954	0958D	S18	E14	.417	16100	28.5	6D	-F		P	0954	166	1.7	E ZX
701 KHAR	27	0957		1020D	N20	E90	1.000	16117	4.2	23D	-F		P	0957			E ZX
702 KHAR	27	1002	1004	1015	S14	E90	1.000	16112	4.2	13	-F		P	1004			D ZX
703 TELV	27	1014	1016	1027	N13	E21	.396	0	29.8	13	-N	2	C		60	.6	ZX
704 KHAR	27	1108		1122	N19	E90	1.000	16117	4.2	14	-F		V	1110			D ZX
GRF75705	27	1638+1	1639+3	1647	N16	E70	.940	16108	1.9	9	-F				35		E
HOLL	27	1638	1639	1646	N16	E70	.940	16108	2.9	8	-F	3	C		28		
MCMA	27	1639	1642	1647	N16	E70	.940	16108	2.9	8	-N		C	1642	40	1.3	E
706 BIGB	27	1824	1827	1841	S23	E90	1.000	16112	4.5	17	-B	2	C	1827	40		ZX
707 HOLL	27	1854	1855	1900	S26	W65	.933	16085	22.9	6	-N	3	C		16		ZX
708 BIGB	27	1948	1949	1958	S23	E90	1.000	16112	4.6	10	-N	2	C	1949	30		ZX
GRF75709	27	2056+2	2058 2106+1	2140	S27	W70	.958	16085	22.6	44	-N						FU
BIGB	27	2056	2106	2151	S29	W73	.972	16085	22.4	55	-B	2	C	2106	180		
HOLL	27	2058	2058	2129	S24	W69	.951	16085	22.7	31	-N	3	C		22		F
HOLL	27	2104	2107	2129	S28	W65	.936	16085	23.0	25	-N	3	C		16		U F
	28	0107	0111	NO FLARE PATROL													
	28	0117	0150	NO FLARE PATROL													
	28	0204	0258	NO FLARE PATROL													
710 CATA	28	0535E	0535	0555	N16	E75	.965	16117	3.9	20D	-N	2	P	0535	56		ZX
GRF75711	28	0627E	0627 0633	0643	N16	E94	.994	16117	3.6	16	?N						J
ABST	28	0627E	0627	0643	N17	E83	.992	16117	4.5	16D	?N		P	0627	87		DJ
	IMP.1 NO : KIEV KANZ CATA HTPR																
ABST	28	0632E	0633	0638	N15	E85	.995	16117	4.6	6D	1F		P	0633	79		DJ
712 ABST	28	0702	0704	0712D	N17	E83	.992	16117	4.5	10D	?F		P	0704	87		DJ ZX
	IMP.1 NO : KIEV KANZ																
713 ISTA	28	0746E		0756	S29	W75	.979	16085	22.7	10D	?F		V				D ZX
	IMP.1 NO : KANZ HTPR MONT CATA																
GRF75714	28	0900+0	0901+1	0908	S23	E80	.990	16112	3.4	8	-N						E
KANZ	28	0849	0902	0904D	S24	E77	.982	16112	4.1	15D	-N	2					
HTPR	28	0900	0901	0908	S19	E80	.989	16112	4.4	8	-N		C	0901	40		E
MONT	28	0900	0902	0905	S24	E80	.990	16112	4.4	5	-N		C	0902	100		
KHAR	28	0905E		0912	S22	E80	.990	16112	4.4	7D	-F		P				B
GRF75715	28	0922+4	0925	0934	S29	W89	1.000	16107	21.7	12	-F						D
ABST	28	0922	0925	0928D	S28	W89	1.000	16107	21.7	6D	1F		P	0925	87		D
KHAR	28	0926		0934	S30	W90	1.000	16107	21.6	8	-F		P	0926			D
GRF75716	28	1012+0	1014+9	1038	S05	W60	.870	16088	23.9	26	1F						EGH
KHAR	28	1012E	1023	1050D	S07	W58	.854	16088	24.1	38D	1F		P	1016	250	4.2	EH
HTPR	28	1012	1014	1025	S05	W60	.870	16088	23.9	13	-F		C	1014	80	1.6	E
KANZ	28	1013E	1019	1023D	S05	W61	.878	16088	23.9	10D	1N	1					FG
717 TELV	28	1020	1024	1034	N15	E20	.396	0	29.9	14	-N	2	C		61	.6	ZX
718 TELV	28	1036	1041	1100	N17	W30	.542	16093	26.2	24	-N	2	C		147	1.7	U ZX
719 KHAR	28	1040		1050D	N14	W90	1.000	16102	21.7	10D	-F		P	1041			D ZX
720 TELV	28	1114	1136	1148	N16	W30	.537	16093	26.2	34	-N	2	C		98	1.8	K ZX
721 KHAR	28	1123E		1130D	N18	E78	.977	16117	4.3	7D	-F		V	1123			D ZX

Hα SOLAR FLARES

JUNE 1979

OBSERV-ATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX LON. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY	MIN.		CONG	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.	
GRF75722	28	1404+2	140?+2	1431	S12	W17	.379	16100	27.3	27	-N				70	.6	E
HOLL	28	1404	1409	1441	S12	W17	.379	16100	27.3	37	-N	3	C		80		F
HTPR	28	1404	1407	1430	S10	W17	.359	16100	27.3	26	-N		C	1407	60	.6	E
PCMA	28	1405	1408	1431	S12	W17	.379	16100	27.3	26	-N		C	1408	60	.7	E
HUAN	28	1406		1424D	S13	W15	.367	16100	27.5	18D	-F	1	C				E
723 HOLL	28	1411	1427	1503	N17	E75	.966	16117	4.2	52	-N	3	C				ZX
724 PCMA	28	1451	1455	1522D	N02	E74	.961	16111	4.2	31D	-F		C	1455	30	.9	E ZX
725 HUAN	28	1543		1554	N03	E90	1.000	16115	5.4	11	-F	1	C	1547	20		D ZX
726 HOLL	28	1624	1624	1636	N19	E32	.579	16104	1.1	12	-N	3	C		25		ZX
727 HUAN	28	2114		2120	N15	E31	.545	16104	1.2	6	-F	1	C	2118	10	.1	D ZX
728 PALE	28	2146	2147	2156	N18	E32	.573	16104	1.3	10	-N	3	C		21		F ZX
729 CULG	29	0048	0053	0134	S27	E78	.986	16112	4.9	46	-F		C	0053	30		ZX
730 CULG	29	0117E	0117U	0128	S07	W48	.657	16109	26.1	11D	-N		P	0117	60	.8	UC ZX
GRF75731	29	0117+9	0127+1	0149	N19	E29	.541	16104	.2	32	1B				210	2.5	FU
PALE	29	0117	0127	0148	N18	E29	.535	16104	1.2	31	1B	*	C		208		U F
CULG	29	0117E	0128	0150	N19	E30	.553	16104	1.3	33D	1B	*	P	0128	260	3.1	FC
BIGB	29	0126	0128	0132E	N19	E24	.479	16104	30.9	6D	-N	*	P	0128	80	.9	
732 CULG	29	0128	0134	0141	N27	W12	.453	16098	28.2	13	-F		C	0134	130	1.5	F ZX
	29	0201	0239	NO FLARE PATROL													
733 ABST	29	0505E	0512	0526	N18	W48	.670	16093	26.2	81D	?N		P	0512	157	2.2	EJ ZX
	IMP.1 NO # TACH																
734 ABST	29	0749	0752	0803	N15	W44	.708	16093	26.8	14	-F		C	0752	105	1.5	DJ ZX
735 ABST	29	0912	0930	1005D	S19	W17	.459	16100	28.1	53D	-F		P	0930	96	1.1	DG ZX
736 ABST	29	0953	0955	1005D	N04	E62	.882	16111	4.1	12D	?F		P	0955	122		D ZX
	IMP.1 NO # HTPR			MONT	CATA	KANZ											
737 KHAR	29	1152E		1155D	N13	W46	.727	16093	26.8	3D	-F		P				ZX
GRP75738	29	1320+3	1324+0	1327	S25	E66	.937	16112	3.5	7	-N				30		D
HTPR	29	1320	1324	1328	S26	E65	.933	16112	4.4	8	-N		C	1324	40	.4	
HUAN	29	1323	1324	1326	S25	E68	.947	16112	4.7	3	-N	1	C	1324	20		D
GRP75739	29	1423+1	1426+2	1435	N23	W61	.886	16106	25.0	12	-F				30	.7	G
HTPR	29	1423	1426	1430	N24	W57	.857	16106	25.3	7	-F		C	1426	20	.4	E
HUAN	29	1423		1432	N23	W62	.893	16106	24.9	9	-F	1	C	1428	25	.9	D
BIGB	29	1424	1426	1437	N22	W61	.885	16106	25.0	13	-N	2	C	1426	60	1.3	
KANZ	29	1424	1428	1439	N24	W61	.887	16106	25.0	15	-N	1					G
GRF75740	29	1447+3	1450+2	1459	N14	E43	.694	16108	1.8	11	-N				30	.4	EG
KANZ	29	1447	1452	1459	N14	E43	.694	16108	2.8	12	-N	1					G
BIGB	29	1448	1450	1457	N15	E43	.697	16108	2.8	9	-N	2	C	1450	50	.7	
HOLL	29	1449	1450	1458	N14	E44	.706	16108	2.9	9	-B	3	C		33		
HTPR	29	1450	1451	1458	N14	E50	.773	16108	3.4	8	-F		C	1451	20	.3	E
GRP75741	29	1736+0	1738+2	1759	N17	E43	.702	16108	2.8	21	-N				50	.7	
HOLL	29	1738	1738	1755	N17	E43	.702	16108	3.0	17	-N	3	C		38		
BIGB	29	1738	1740	1802	N17	E43	.702	16108	3.0	24	-N	2	C	1740	70	1.0	
GRP75742	29	1820+3	1825+1	1836	N20	E64	.904	16117	3.6	16	-B				70		E
BIGB	29	1820	1826	1837	N19	E64	.903	16117	4.6	17	1B	2	C	1826	90	2.1	
HOLL	29	1823	1825	1835	N20	E64	.904	16117	4.6	12	-B	3	C		69		DE
HUAN	29	1823E		1829D	N20	E64	.904	16117	4.6	6D	-N	1	P	1826	40		E
743 BIGB	29	1853	1854	1926	N18	E22	.446	16104	1.4	33	-F	2	C	1854	30	.3	ZX
744 BIGB	29	2137	2138	2144	N21	W50	.788	16093	26.2	7	-N	2	C	2138	20	.3	ZX
745 CULG	29	2144E	2144U	2155	S19	W24	.530	16108	28.1	11D	-N		P	2144	80	1.0	ZX
GRF75746	29	2205+0	2208+1	2218	S28	E89	1.000	16112	5.6	13	-F				35		
CULG	29	2205	2209	2218	S30	E88	1.000	16112	6.5	13	-F		C	2209	30		
BIGB	29	2205	2208	2217	S26	E90	1.000	16112	6.7	12	-N	2	C	2208	40		

Hα SOLAR FLARES

JUNE 1979

OBSERV-ATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS	
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY	MIN.		CONF.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.		
GRF75747	29	2236+0	2237+0	2243	N21	E58	.860	16117	3.3	7	-B				30	.6		
BIGB	29	2236	2237	2244	N21	E58	.860	16117	4.3	8	-B	2	C	2237	30	.6		
HOLL	29	2236	2237	2242	N19	E58	.857	16117	4.3	6	-B	3	C		36			
CULG	29	2236E	2237	2243	N21	E60	.876	16117	4.4	70	-N		P	2237	30	.6		
GRF75748	29	2253+0	2255+6	2310	N17	E40	.667	16108	2.0	17	-N				80	1.1	U	
CULG	29	2253	2301	2310	N18	E40	.670	16108	3.0	17	-N		C	2301	100	1.3	U	
HOLL	29	2253	2255	2309	N16	E40	.663	16108	3.0	16	-N	3	C		65			
GRF75749	30	0006+0	0008+2	0025	N05	E53	.798	16111	3.0	19	-N				35	.6		
BIGB	30	0006	0008	0024	N05	E53	.798	16111	4.0	18	-N	2	C	0008	20	.3		
CULG	30	0006	0010	0026	N05	E54	.808	16111	4.1	20	-N		C	0010	50	.9		
750 CULG	30	0108E	0128	0200	S19	W26	.553	16100	28.1	520	-N		P	0128	90	1.1	FK	ZX
751 CULG	30	0127	0135	0144	S14	W43	.717	16100	28.8	17	-F		C	0135	80	1.1		ZX
752 CULG	30	0331	0339	0352	N20	W54	.823	16093	28.1	21	-F		C	0339	60	1.1	T	ZX
753 CULG	30	0429	0434	0445	N18	E12	.330	16104	1.1	16	-N		C	0434	30	.4		ZX
754 ABST	30	0508	0522	0652	N18	W53	.810	16093	28.2	104	-F		C	0522	70	1.2	D	ZX
GRF75755	30	0536+1	0540+2	0545	N19	E38	.650	16108	2.1	7	-F				140	1.9	D	
ABST	30	0538	0540	0542	N20	E40	.678	16108	3.2	4	-F		C	0540	87	1.2	D	
CULG	30	0539	0542	0547	N19	E36	.626	16108	2.9	8	1F		C	0542	190	2.6		
GRF75756	30	0551+0	0559+3	0638	S28	E78	.987	16112	5.1	47	1F				130		F	
ABST	30	0551	0602	0638	S28	E79	.989	16112	6.2	47	1F		C	0602	175		F	
CULG	30	0551	0559	0619D	S28	E78	.987	16112	6.1	28D	1N		P	0559	90			
757 CULG	30	0553	0559	0608	S13	W47	.757	0	26.7	15	-F	*	C	0559	50	.8		ZX
GRF75758	30	0602+1	0607+6	0633	S18	W27	.555	16100	28.2	31	-N				90	1.1	EJ	
CULG	30	0546	0613	0619D	S17	W28	.559	16100	28.1	330	-N	*	P	0613	120	1.5	F	
HTPR	30	0602	0611	0633	S18	W24	.522	16100	28.5	31	-F	*	C	0611	30	.3	E	
ABST	30	0602	0607	0633	S19	W27	.564	16100	28.2	31	1N	*	C	0607	175	2.2	EJ	
ISTA	30	0603		0625	S18	W29	.578	16100	28.1	22	1B	*	V				E	
CATA	30	0610	0610	0625D	S19	W27	.564	16100	28.2	15D	-B	*	P	0610	67	.8		
758 ABST	30	0829	0843	0854	N09	E90	1.000	16119	7.1	25	?F		C	0843	96		AD	ZX
	IMP.1 NO : HTPR KIEV CATA																	
GRF75760	30	0927+5	0931+2	0944	N03	E46	.719	16111	2.8	17	-F				60	.9	J	
ABST	30	0927	0931	0942	N02	E47	.731	16111	3.9	15	-N		C	0931	87	1.3	DJ	
HTPR	30	0932	0933	0945	N05	E45	.706	16111	3.8	13	-F		C	0933	40	.6	E	
761 TELV	30	0949	0953	1006	N21	E90	1.000	16120	7.2	17	-B	3	C					ZX
762 HTPR	30	1215	1218	1222	N18	E43	.705	16117	3.7	7	-B		C	1218	150	2.0		ZX
763 HTPR	30	1425	1432	1445	S16	E63	.906	16112	5.3	20	-F		C	1432	30	.6		ZX
764 HTPR	30	1528	1532	1536	N18	E41	.682	16117	3.7	8	-F		C	1532	60	.8	E	ZX
765 HTPR	30	1615	1619	1625	N17	E38	.642	16117	3.5	10	-F		C	1619	50	.7		ZX
766 HTPR	30	1727	1729	1735	N05	E41	.656	16111	3.8	8	-F		C	1729	20	.3	E	ZX
767 HOLL	30	1835	1836	1844	N18	E45	.727	16117	4.1	9	-B	3	C		42			ZX
GRF75768	30	1850+1	1852+0	1900	S20	W32	.626	16100	28.4	10	-N				90	1.1		
BIGB	30	1850	1852	1900	S20	W32	.626	16100	28.4	10	-F	1	C		75	.9		
HOLL	30	1851	1852	1934	S19	W31	.609	16100	28.5	43	-B	3	C		104		F	
HUAN	30	1851		1855	S20	W35	.659	16100	28.2	4	-F	1	C				E	
769 CULG	30	2200	2302	2354	N19	W67	.923	16093	25.9	114	?N		P	2302	90	2.1	KFL	ZX
	IMP.1 NO : HOLL HANI																	
GRF75770	30	2210+3	2215+4	2240	N05	E48	.642	16111	2.9	30	-N						F	
CULG	30	2210	2217	2254	N05	E40	.642	16111	3.9	44	-N		C	2217	130	1.7	F	
BIGB	30	2212	2219	2240	N06	E49	.754	16111	4.6	28	1F	1	C		225	3.5		
HOLL	30	2213	2215	2238	N04	E38	.615	16111	3.8	25	-N	3	C		51			
771 CULG	30	2247	2250	2306D	N16	E37	.626	16117	3.7	19D	-F		P	2250	40	.6		ZX
772 CULG	30	2247	2251	2254D	S41	W04	.693	0	30.6	7D	-F		P	2251	70	1.0	G	ZX

Hα SOLAR FLARES

JUNE 1979

OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IMPOR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY	MIN.		CONF.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.	
773 HOLL	30	2249	2249	2307	N15	E26	.476	16108	2.9	18	-F	3	C		25		ZX
774 CULG	30	2354	2405	0054	S16	E64	.913	16118	5.8	60	?N		C	2405	220	5.1	I ZX
	IMP.1 NO 1 HOLL			MANI													
GRP75775	30	2356	0002	0020	S17	W36	.674	16100	28.1	22	-F						
CULG	30	2358	2402	0020	S17	W36	.674	16100	28.1	22	-F		C	2402	80	1.0	
CULG	30	2358	2402	0020	S17	W36	.674	16100	28.1	22	-F		C	2402	80	1.0	

"REMARKS":

A = Eruptive prominence whose base is less than 90 degrees from central meridian.
B = Probably the end of a more important flare.
C = Invisible 10 minutes before.
D = Brilliant point.
E = Two or more brilliant points.
F = Several eruptive centers.
G = No visible spots in the neighborhood.
H = Flare accompanied by high-speed dark filament.
I = Active region very extended.
J = Distinct variations of plage intensity before or after the flare.
K = Several intensity maxima.
L = Existing filaments show signs of sudden activity.
M = White-light flare.
N = Continuous spectrum shows effects of polarization.
O = Observations have been made in the H and K lines of CaII.
P = Flare shows helium D3 in emission.
Q = Flare shows Balmer continuum in emission.
R = Marked asymmetry in H-alpha line suggests ejection of high-velocity material.
S = Brightness follows disappearance of filament in same position.
T = Region active all day.
U = Two bright branches, parallel or converging.
V = Occurrence of an explosive phase: important, expansion within roughly 1 minute that often includes a significant intensity increase.
W = Great increase in area after time of maximum intensity.
X = Unusually wide H-alpha line.
Y = System of loop-type prominences.
Z = Major sunspot umbra covered by flare.

JUNE 1979

DAILY FLARE INDICES

Includes all Flares

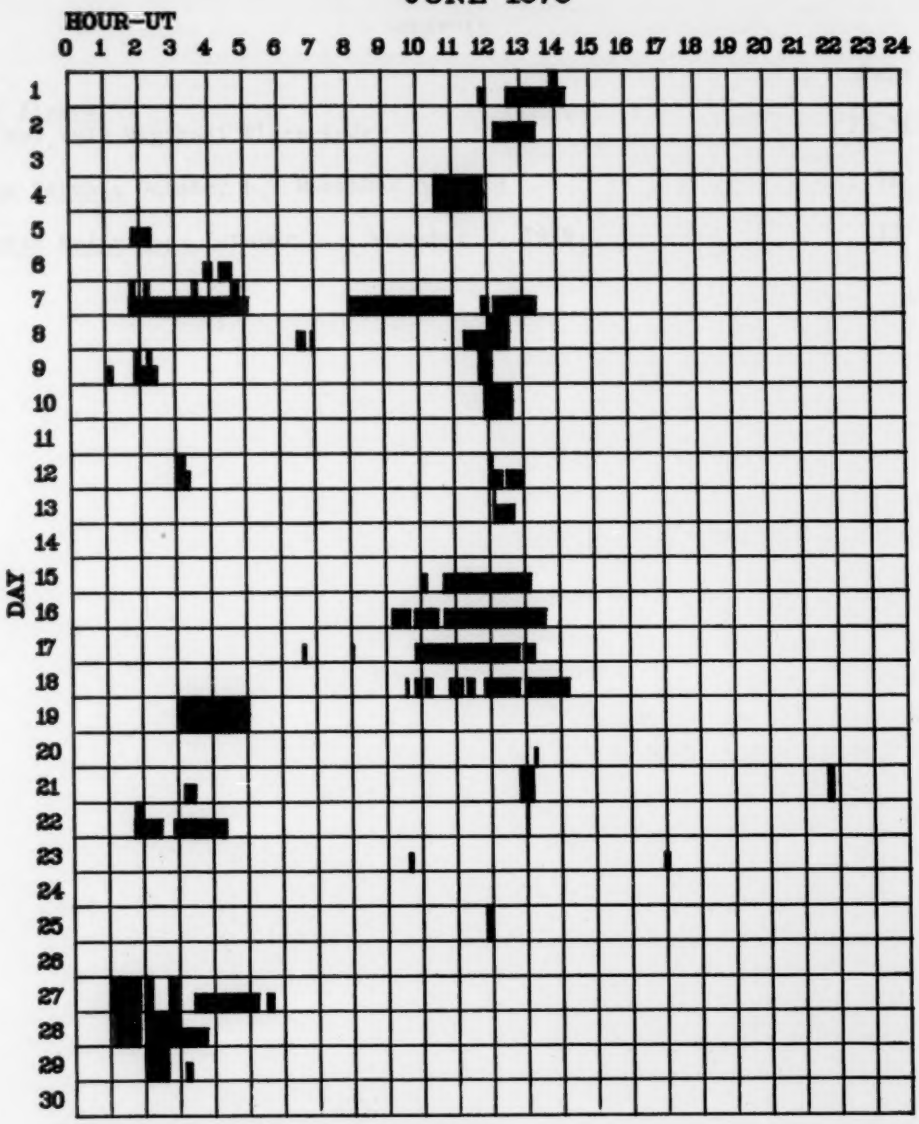
Date	Flare Index	HR. OBS.	Date	Flare Index	HR. OBS.	Date	Flare Index	HR. OBS.
790601	53.33	23.8	790611	127.89	24.0	790621	31.51	23.[illegible]
790602	189.47	24.0	790612	47.31	23.8	790622	60.54	23.8
790603	421.50	24.0	790613	144.95	24.0	790623	58.58	24.0
790604	498.85	23.4	790614	60.93	24.0	790624	63.51	24.0
790605	604.25	24.0	790615	53.21	24.0	790625	142.46	23.9
790606	95.37	24.0	790616	93.64	24.0	790626	30.41	24.0
790607	135.28	23.5	790617	117.35	24.0	790627	114.65	22.8
790608	165.09	23.4	790618	81.22	24.0	790628	36.36	22.5
790609	159.03	23.5	790619	45.56	22.1	790629	57.20	23.4
790610	2467.27	23.2	790620	46.23	24.0	790630	73.22	24.0

When no Flare Index is given, it is 0 for that day.

INTERVALS OF NO FLARE PATROL OBSERVATION

FOR PRECEDING SOLAR FLARE TABLE

JUNE 1979



Observatories included in total patrol:

Abastumani	Haute Provence	Kharkov	Mitaka	Tel Aviv
Athens	Holloman	Kiev	Monte Mario	Voroshilov
Big Bear	Huancayo	Locarno	Palehua	Wendelstein
Bucharest	Istanbul	Lvov	Purple Mt.	Yunnan
Catania	Kandilli	Manila	Ramey	Zürich
Culgoora	Kanzelhöhe	McMath-Hulbert	Tashkent	

Times of no flare patrol are shown by the shaded area. Each day is divided into times of no cinematographic patrol (bottom half of day) and times of neither visual nor cinematographic patrol (top half of day).

SGD 431 Part II (Comprehensive)

MISCELLANEOUS DATA

Contents

	Page
Solar Flares May 1979 Regional Flare Index	70-71
Active Regions October 6 - November 3, 1979	72
Synoptic Solar Maps October 6 - November 3, 1979	73

REGIONAL FLARE INDEX

Includes all Flares

MAY 1979

HG MATH PLAGE NO.	LAT	CMP DATE	DATE FIRST FLARE	DATE LAST FLARE	FLARE-INDEX SUM	FLARE-INDEX MEAN	TOTAL NO. OF FLARES
15973	S36	79/05/02.4	79/05/03	79/05/09	5.71	2.86	7
15974	N15	79/05/02.8	79/04/26	79/05/09	554.65	39.62	99
15976	N27	79/05/03.0	79/05/06	79/05/07	5.75	2.88	4
15978	S16	79/05/03.0	79/04/30	79/05/02	19.31	6.44	5
15984	S30	79/05/06.0	79/04/30	79/04/30	.84	.84	1
15982	S25	79/05/07.1	79/05/02	79/05/12	12.89	1.10	7
15986	N20	79/05/07.5	79/05/02	79/05/11	13.30	1.33	5
15989	N18	79/05/08.5	79/05/12	79/05/12	3.80	3.80	2
15987	S27	79/05/10.1	79/05/03	79/05/14	12.14	1.01	6
15990	N23	79/05/10.2	79/05/03	79/05/17	211.42	14.09	68
15992	N 6	79/05/11.5	79/05/05	79/05/16	233.83	19.49	57
15994	N19	79/05/11.6	79/05/07	79/05/15	1.69	.19	2
15991	N33	79/05/11.9	79/05/13	79/05/13	1.90	1.90	1
15996	S21	79/05/12.0	79/05/11	79/05/18	77.54	9.69	50
15995	N 4	79/05/12.6	79/05/07	79/05/11	56.49	11.30	19
15997	S33	79/05/13.1	79/05/07	79/05/14	10.62	1.35	6
15999	N17	79/05/13.6	79/05/08	79/05/19	66.30	5.53	41
16001	S16	79/05/13.7	79/05/06	79/05/18	51.62	4.69	17
16000	N 8	79/05/14.1	79/05/10	79/05/17	5.28	.66	2
16004	S27	79/05/14.5	79/05/11	79/05/11	3.38	3.38	1
16003	N30	79/05/14.7	79/05/09	79/05/20	17.33	1.44	13
16005	S15	79/05/15.0	79/05/09	79/05/21	19.03	1.46	12
16014	N15	79/05/15.8	79/05/10	79/05/22	173.44	13.34	58
16007	N23	79/05/15.8	79/05/12	79/05/22	9.50	.86	4
16017	S30	79/05/15.9	79/05/14	79/05/19	69.55	11.59	19
16018	N38	79/05/16.1	79/05/14	79/05/21	7.39	.92	6
16010	N13	79/05/17.3	79/05/10	79/05/19	63.26	6.33	22
16009	S19	79/05/17.5	79/05/15	79/05/15	2.59	2.59	1
16033	N21	79/05/17.9	79/05/21	79/05/24	2.74	.69	2
16013	S30	79/05/18.5	79/05/14	79/05/14	1.90	1.90	1
16021	S30	79/05/18.8	79/05/21	79/05/24	19.00	4.75	6
16012	N26	79/05/19.6	79/05/12	79/05/24	106.11	8.16	33
16015	N13	79/05/19.9	79/05/16	79/05/16	1.90	1.90	1
16023	S15	79/05/21.7	79/05/16	79/05/23	9.62	1.20	6
16020	N14	79/05/21.7	79/05/17	79/05/26	21.96	2.20	14
16024	N26	79/05/22.3	79/05/20	79/05/26	44.70	6.39	13
16028	N23	79/05/23.5	79/05/28	79/05/28	.84	.84	1
16029	N14	79/05/23.5	79/05/25	79/05/25	20.27	20.27	7
16025	S21	79/05/23.9	79/05/17	79/05/28	153.54	12.80	42

REGIONAL FLARE INDEX

Includes all Flares

MAY 1979

HC MATH PLAGE NO.	LAT	CMP DATE	DATE FIRST FLARE	DATE LAST FLARE	FLARE-INDEX SUM	FLARE-INDEX MEAN	TOTAL NO. OF FLARES
16026	S2?	79/05/24.4	79/05/20	79/05/26	10.81	1.54	5
16042	N23	79/05/25.2	79/05/28	79/05/29	2.74	1.37	2
16030	S21	79/05/25.3	79/05/18	79/05/26	167.04	18.56	30
16031	N14	79/05/26.0	79/05/20	79/06/01	182.14	14.81	37
16032	S23	79/05/26.9	79/05/23	79/05/29	30.66	4.38	6
16034	S34	79/05/27.9	79/05/20	79/05/28	22.85	2.54	13
16036	N25	79/05/28.4	79/05/24	79/05/31	33.36	4.17	7
16045	S 8	79/05/29.4	79/05/30	79/05/30	5.28	5.28	1
16041	N17	79/05/29.8	79/05/24	79/06/03	83.76	7.61	25
16043	S22	79/05/30.0	79/05/27	79/05/27	3.44	3.44	1
16040	S32	79/05/30.0	79/05/23	79/06/06	42.48	2.83	23
16044	S20	79/05/30.8	79/05/26	79/05/31	12.96	2.16	6
16053	S14	79/05/31.7	79/06/07	79/06/07	6.76	6.76	8

ACTIVE REGIONS
CARRINGTON ROTATION 1687
(October 6 to November 3, 1979)

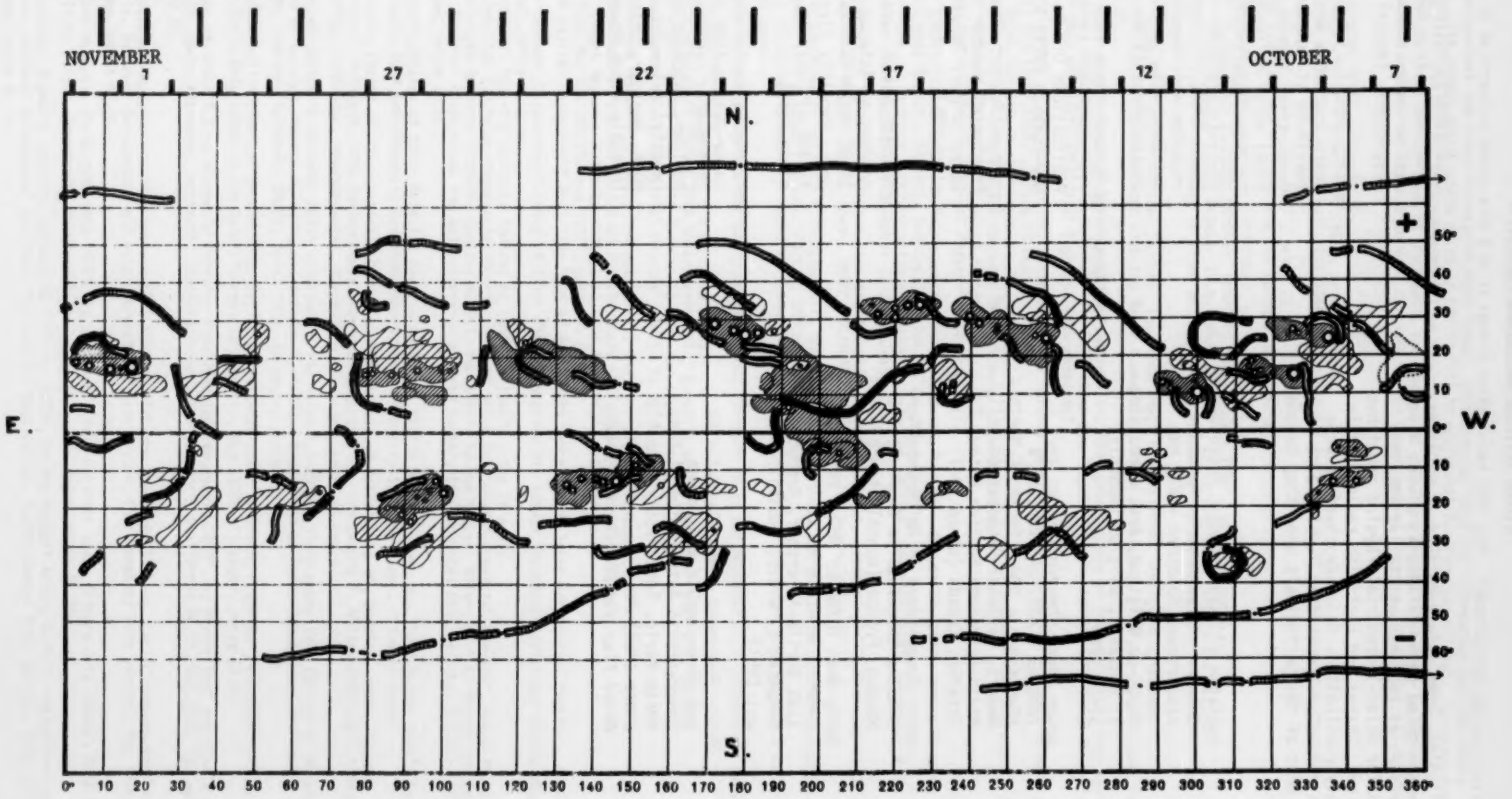
Region No.	Coordinates Lat.	Long.	IMP	Age at CMP	Spot-less Region	Region No. in Rotation 1686	Activity at West Limb
1	5°S	341°	2	-1			decreasing
2	13 S	340	3	+3			increasing
3	29 N	338	2	+1			decreasing
4	20 N	336	1	>6	x		decreasing
5	13 N	335	1	>6	x		decreasing
6	17 S	333	2	+6			decreasing
7	26 N	328	5	>6			decreasing
8	16 N	321	6	>6			decreasing
9	34 S	312	2	>6			decreasing
10	20 N	308	1	>6	x		dispersed
11	14 N	307	1	>6	x	10/11	dispersed
12	17 N	298	1	+2	x		dispersed
13	12 N	297	5	+6			decreasing
14	12 S	296	1	-2	x		disappeared
15	18 S	295	1	-2	x		increasing
16	6 S	291	1	-1	x		disappeared
17	11 S	287	1	>6	x	13	disappeared
18	25 S	279	1	-1	x		dispersed
19	27 S	267	1	>6	x	15	decreasing
20	20 S	259	1	>6	x		decreasing
21	30 N	258	1	+1	x		disappeared
22	27 N	251	4	>6			decreasing
23	32 S	247	1	>6	x		dispersed
24	32 N	240	2	>6			stable
25	14 S	236	2	-1			decreasing
26	13 N	235	3	>6			decreasing
27	17 S	229	1	+3	x		decreasing
28	17 N	225	1	>6	x		decreasing
29	33 N	222	6	+4			decreasing
30	5 N	217	1	>6	x		dispersed
31	18 S	214	1	+4	x		decreasing
32	5 S	203	2	>6			decreasing
33	0	202	1	>6	x		decreasing
34	13 N	198	1	>6	x	29/30	decreasing
35	18 N	195	2	+2			decreasing
36	7 N	189	2	>6			decreasing
37	28 N	189	2	+3			decreasing
38	13 N	186	1	-4	x		stable
39	14 S	185	1	>6	x		dispersed
40	35 N	178	1	>6	x		dispersed
41	27 N	177	7	>6			decreasing
42	14 S	172	1	>6	x		dispersed
43	26 S	165	2	>6			decreasing
44	14 S	158	2	>6			decreasing
45	30 N	156	1	>6	x	41	dispersed
46	10 S	153	2	>6			decreasing
47	13 S	140	6	>6			decreasing
48	19 N	128	1	>6	x	48/49/50	decreasing
49	26 N	121	2	>6			decreasing
50	9 S	113	1	-4	x		decreasing
51	14 N	108	1	>6	x		disappeared
52	15 N	97	3	0			stable
53	10 N	96	1	0			dispersed
54	13 S	94	2	>6			decreasing
55	18 S	94	5	>6			decreasing
56	20 N	93	1	>6	x	57	dispersed
57	10 N	90	1	-4			increasing
58	25 S	86	2	>6		69	decreasing
59	15 N	83	2	0			decreasing
60	34 N	79	1	-2	x		decreasing
61	17 N	72	1	-4	x		decreasing
62	13 N	69	1	>6	x		dispersed
63	24 N	67	1	>6	x		dispersed
64	17 S	66	2	-3			decreasing
65	17 S	56	1	>6	x	64	decreasing
66	26 N	50	2	>6			decreasing
67	18 N	46	1	-3	x		increasing
68	14 N	41	1	>6	x	66/67	dispersed
69	11 S	28	1	>6	x	69	dispersed
70	19 S	24	1	>6	x		dispersed
71	13 N	20	1	>6	x	70	decreasing
72	28 S	18	2	>6			decreasing
73	19 N	12	7	>6			decreasing
74	25 N	11	1	+1	x		disappeared
75	13 N	4	1	>6	x	72	dispersed

SYNOPTIC SOLAR MAP

CARRINGTON ROTATION 1684

OCTOBER 6 - NOVEMBER 3, 1979

MEUDON OBSERVATORY



73
Misc
Oct-Nov 79

SOME OTHER SOURCES OF DATA

Data Available: Some data available in publication form are cited here. A list is given, along with addresses of the responsible institutions. The WDC-A for Solar-Terrestrial Physics publishes the Toyokawa, Ottawa and Penticton radio data in its monthly publication, *Solar-Geophysical Data*. The WDC-A for Solar-Terrestrial Physics also receives most of the periodicals when they become available.

Belgium: *Bulletin d'Observations: Activite Solaire - Observations Radioelectriques Solaires - 600 MHz (Humain, Belgium)* Observatoire Royal de Belgique, Ave. Circulaire 3, Brussels, Belgium (monthly since 1962)

Canada: *Solar Noise Observations at 2800 Mc/s (Ottawa - ARO) and 2700 Mc/s (Pentiaton - DRAO)* Series C Monthly Report, National Research Council, Radio Astronomy Section Ottawa 7, Ontario, Canada (since 1947)

France: *Carte Synoptiques de la Chromosphere Solaire* Observatoire de Paris, 92 Meudon, France (monthly since 1931)

Germany: *Daily Mean Value of Solar Flux Density* Heinrich-Hertz Institut, 1199 Berlin-Adlershof, Rudower Chaussee 5, G.D.D. (monthly since Jul 1957)

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